The Nostratic Macrofamily and Linguistic Palaeontology

Aharon Dolgopolsky

with an introduction by
Colin Renfrew

THE McDONALD INSTITUTE FOR ARCHAEOLOGICAL RESEARCH

Papers in the Prehistory of Languages

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by Colin Renfrew

Introduction: the Nostratic Hypothesis, Linguistic Macrofamilies and Prehistoric Studies

Colin Renfrew
Director of the McDonald Institute for Archaeological Research
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Foreword

It is with great pleasure that I take the opportunity of introducing Aharon Dolgopolsky's *The Nostratic Macrofamily and Linguistic Palaeontology*, published by the McDonald Institute for Archaeological Research as a part of its current Research Project on 'The Prehistory of Languages'. The project is supported with a generous grant from the Alfred P. Sloan Foundation. The Foundation has as its aim the support of research at the uncertain frontiers of knowledge, where the limits to our understanding are not yet clearly defined, and such appears the position in this field, where historical linguistics, prehistoric archaeology and molecular biology overlap in an area of uncertain methodologies.

Such, at any rate to the outside observer, well characterizes the current position in historical linguistics with regard to what may be called 'macrofamilies', that is to say wide linguistic groupings which bring together a number of established linguistic families. The validity of such an enterprise has been questioned by a number of linguists, and the status of the position with regard to macrofamilies (or 'superfamilies') is far from clear to an outsider. At the same time the significance to the understanding of human history and prehistory, if the validity of such macrofamilies were to be accepted, is enormous. The implications for the early history of human populations, and of population movements, would be very considerable. For this reason the topic is attracting increasing attention among archaeologists and among molecular geneticists concerned precisely with the reconstruction of early population histories, to which their own discipline is now increasingly in a position to make notable contributions.

The Nostratic macrofamily has been documented for some time by a substantial body of work, but much of this is published in Russian and is little known in the west. For that reason this short monograph by Aharon Dolgopolsky may be seen as of particular importance. Its subject matter is of the greatest interest to the prehistoric archaeologist of Europe and Western Asia and lands beyond, just

as it must be to the historical linguist concerned with the languages of these areas. But this work goes further: it presents for the first time a full and rich illustration, with a large vocabulary, of the central tenet of the Nostratic hypothesis, namely that the constituent families of the Nostratic macrofamily are indeed related, and that this relationship can be documented using the traditional and well tried 'comparative method' of historical linguistics. This was first developed in its full complexity and rigour in the field of Indo-European studies (Brugmann 1897–1916) and has subsequently been applied to a wide range of language families. The present short monograph should therefore offer to historical linguists the opportunity of evaluating the linguistic reconstructions presented here, and thus the hypothetical relationships which it is claimed that they demonstrate.

The discipline of historical linguistics has had some difficulty, or so it would seem, in evaluating the claims of those who have proposed the existence of various macrofamilies. It is therefore the intention of the 'Prehistory of Languages' Project of the McDonald Institute to seek to generate informed discussion of the present short monograph by circulating it widely, and by inviting qualified linguists and others to submit comments which, it is hoped, will form the basis for a symposium or conference, to be held probably in 1998, to evaluate the current standing of the Nostratic hypothesis.

It is furthermore the hope and intention of the McDonald Institute to publish, within the framework of the Project, Dolgopolsky's comprehensive *Nostratic Dictionary*, currently in preparation. For it is clear, in view of the methodological difficulties, that historical linguists will best be able to evaluate the status and standing of the proposed Nostratic macrofamily when they are in possession of a very substantial body of data. If the Nostratic hypothesis is accepted, the *Nostratic Dictionary*, building on Dolgopolsky's earlier work and that of Illich-Svytich, will clearly be a fundamental and pioneering contribution to our understanding of the prehistory of Europe and Western Asia and of the principal languages of these regions. But first, until that acceptance be achieved, it will serve as the basic exposition and exemplification of the Nostratic hypothesis itself, and therefore, quite properly, become the object of critical examination by historical linguists.

It is hoped that the present volume will permit the first stage in that process of critical evaluation. As indicated above, the intention is to follow it with a further volume of critical studies which will form part of the evaluative process. Dolgopolsky's important paper in many ways speaks for itself. If the initial hypothesis (of the validity of the proposed macrofamilial relationships and

equivalences) is accepted, then it throws a flood of light upon the world of the Upper Palaeolithic and perhaps the Early Neolithic of a vast segment of the earth. This would be of the greatest importance for prehistoric archaeologists and for all those concerned with the early human past. At the same time since the language families involved include, in the modern world, so high a proportion of the world's languages, the Nostratic proto-language (if the hypothesis is accepted) offers fundamental insights into the earliest discernible origins of these various languages. The prospect is therefore a very exciting one. In the few pages of this Introduction I shall try to touch upon some of these issues, drawing upon an earlier paper (Renfrew 1991), while very much aware as a non-linguist how difficult it is to evaluate or comment upon the central hypothesis, namely the validity of the Nostratic macrofamily concept. I am aware also that this is not an easy task for linguists, and it is therefore in a spirit of enquiry, and in the hope of clarifying the current status of the Nostratic hypothesis (and that of other proposed macrofamilies) that this volume is published

The Nostratic hypothesis

The Nostratic hypothesis, in its earliest form, was put forward in 1903 by the Danish linguist Holger Pedersen, who drew attention to similarities between a number of the language families of the Old World, including Semitic, Indo-European, Uralic, Altaic and Eskimo-Aleut (Pedersen 1931). He suggested that these could be regarded as belonging to a larger linguistic unity , which he proposed to call 'Nostratic', a term derived from the Latin *nostras* (genitive *nostratis*), 'our countryman'. The terminology is somewhat ethnocentric, and for that reason Dolgopolsky's term 'Boreic' (Dolgopolsky 1973) or Joseph Greenberg's 'Eurasiatic' might be preferable (Greenberg 1987, 332). But at least it is clear.

Implicit within such thinking is the Darwinian evolutionary model, first made explicit for languages in graphic form by Schleicher (1863), that the languages under comparison, if they are judged to be related, are 'sprung from some common source' (Jones 1786), that is to say from a hypothetical ancestral language or proto-language. For instance the languages which Sir William Jones recognized in 1786 as related, and which were regarded as belonging to a language 'family' later termed Indo-European, were assumed all to be the descendants of a hypothetical ancestral language, Proto-Indo-European. Population groups would have become divided or separated through the circumstances of history, and the language or dialects spoken by them would become increasingly different, through isolation and the passage of time, until the languages of these groups could be

regarded as different. The process is analogous to that of genetic drift.

The Romance languages formed the prime exemplar for many early historical linguists, being evidently descended from a proto-language which in this case was not hypothetical but known, namely late Latin. The individual Romance language (French, Spanish, Romanian etc.), were seen to stand in the same relation to Latin as did Latin, Old Slavonic, classical Greek etc. to Proto-Indo-European. All this is familiar enough and generally accepted. One of the great tasks of Indo-European comparative linguistics has been to understand the phonological regularities, the sound shifts, which led from the ancestral Latin to the various Romance languages, and in the same way from the reconstructed Proto-Indo-European to its descendant language families.

The Nostratic approach undertakes the analogous but bold task of going one step further back in time, from the language families in question, each with its ancestral proto-language, to a further and earlier hypothetical ancestor, Proto-Nostratic, which would, in a similar way be the ancestor of Proto-Indo-European, Proto-Uralic etc. The Nostratic macrofamily would thus include the various families (Indo-European, Hamito-Samitic, Uralic etc.), just as these (e.g. Indo-European) contained the specific sub-families (Romance, Slavonic, Germanic etc.) and languages (French, Polish, Dutch etc.).

The detailed development of this theory has been the work principally of two scholars (see Kaiser & Shevoroshkin 1988), namely Vladimir Illich-Svitych and Aharon Dolgopolsky. Illich-Svitych (1989; 1990; and references in the paper by Dolgopolsky) was unfortunately killed in a road accident in August 1966, and his work is only now becoming more widely known in the west (Bulatova 1989). Aharon Dolgopolsky developed the principal ideas independently and then was for some time a colleague of Illich-Svitych; he subsequently emigrated from Russia to Israel (Dolgopolsky 1973, and references in his paper).

The concept which thus emerged, as glimpsed by Pedersen, was of a much larger superfamily or macrofamily or linguistic phylum than had previously been proposed, embracing a whole series of lesser families. At its heart, at some very early time (set by many Nostratic scholars as some time before 15,000 BC), lies the notion of the Nostratic proto-language, a higher level proto-language, the common ancestor of all the proto-languages within the group.

The language families which Illich-Svitych and Dolgopolsky recognized as having a common ancestral family relationship in this way are:

- the Indo-European language family
- the Afroasiatic family
- the Dravidian family

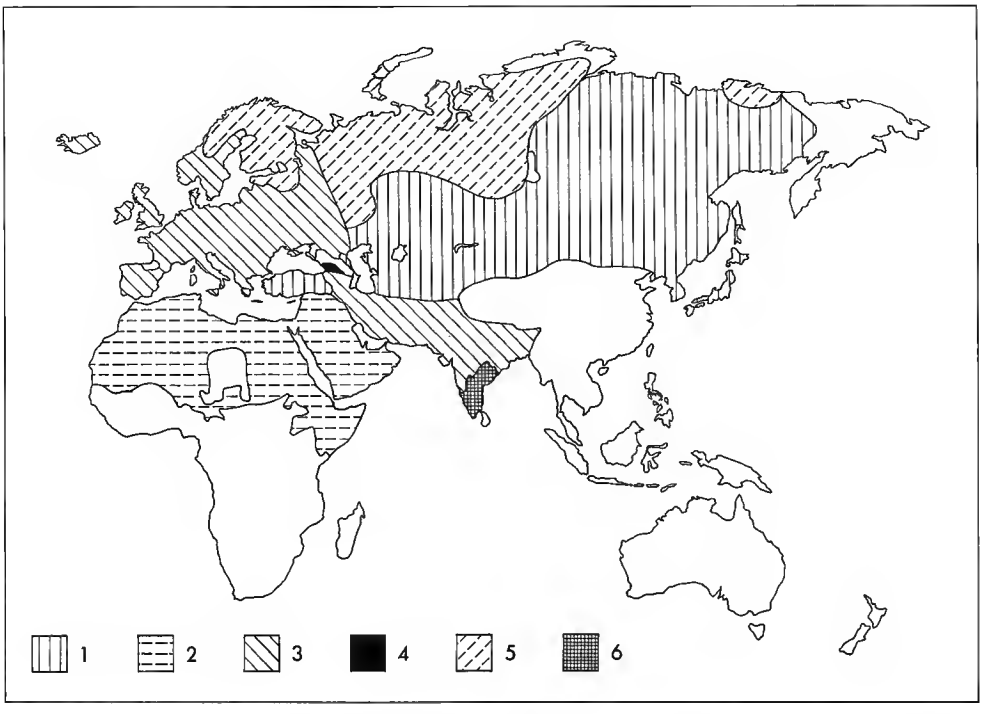

Figure 1. *The Nostratic macrofamily. The present-day distribution of the language groups within the Nostratic macrofamily. The constituent language families are: (1) Altaic; (2) Afroasiatic; (3) Indo-European; (4) South Caucasian (Kartvelian); (5) Uralic; (6) Dravidian.*

- the Altaic family
- the Kartvelian (South Caucasian) family
- the Uralic-Yukaghir family.

This offers an astonishing and breathtaking perspective — a vast linguistic panorama (Fig. 1). The present extent of the Indo-European family, that is to say the land occupied by its speakers, covers most of Europe, plus Iran, Pakistan, and much of India along with Sri Lanka (not to mention the products of later colonization in the Americas and the southern hemisphere).

The Afroasiatic language family itself is of very considerable extent (Fig. 2): it is often termed 'Hamito-Semitic' (see Diakonoff 1965; 1988). Since the 1920s its reality as a real family grouping, to be regarded as the descendant of a single ancestral language (i.e. Proto-Afroasiatic or Proto-Hamito-Semitic), has been generally accepted (Meillet & Cohen 1924; Cohen 1947). It coincides to a considerable extent with the grouping recognized by Joseph Greenberg (1963) and termed by him 'Afroasiatic'.

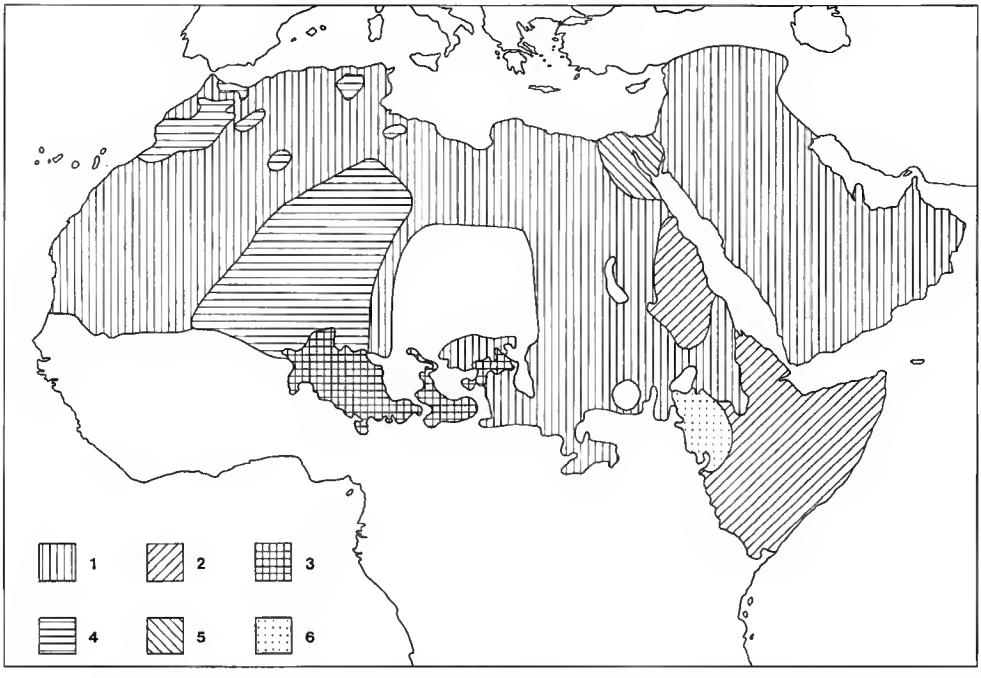

Figure 2. *The Afroasiatic languages. The present-day distribution of languages within the broader language groups which have themselves been classified together within the Afroasiatic family or macrofamily. The constituent language families are as follows: (1) Semitic; (2) Cushitic; (3) Chadic; (4) Berber; (5) Ancient Egyptian; (6) Omotic. (Based on Ruhlen 1991, 86)*

The Altaic language languages are not generally recognized as forming so close-knit a family as the above (Miller 1991), indeed as Ruhlen (1991, 130) puts it: 'There is no consensus today on either the membership or the subgrouping of the Altaic family'. It should be noted that in the discussion which follows Dolgopolsky now includes Korean and Japanese within the Altaic family.

There is considerable convergence between the position of the Nostratic scholars and that adopted by Greenberg (1987, 259) for his Eurasiatic macrofamily, as set out in detail by Ruhlen (1991, 383). It should be noted, however, the Greenberg would include the Eskimo-Aleut languages and Chukchi-Kamchatkan, as well as Ainu and Gilyak within the Eurasiatic macrofamily, while excluding the Afroasiatic, Kartvelian and Dravidian families. So although the macrofamily concept is similar in each case, there are very significant differences. It is to be hoped that these matters will be discussed in some detail when Dolgopolsky's paper is circulated for comment.

The archaeological background to Nostratic

To each language family there must be some underlying archaeological reality. When various populations speak related languages, this circumstance must be the result of concrete historical processes, operating at specific places and at particular times. Linguists have generally assumed (with the notable exception of Trubetzkoy (1939)) that the languages of such a family are indeed the descendants of a proto-language, and that this will have been spoken by a group of people at a given place and time. Archaeologists have generally accepted this view, and have therefore sought the ancestral homeland of the speakers of the proto-language. Such has certainly been the case, for instance, with the Indo-European languages, and the search for the homeland of the Proto-Indo-Europeans, well discussed by Mallory (1989), has been an exhaustive one, still without definitive outcome.

If the Nostratic hypothesis be accepted, the problem becomes a very much bigger one. What sort of homeland does one envisage for the ancestral Proto-Nostrtatic language far back in time, very possibly in the later part of the Upper Palaeolithic period? Is it really appropriate to speak, in this case, of a restricted homeland for a well and perhaps narrowly defined group of people?

Here Dolgopolsky's paper gives rich food for speculation. He has used the methods of linguistic palaeontology to give what seems like a remarkably full description of what might be regarded as the original environment of the Proto-Nostratic speakers before some of them thought it preferable to leave the area. I have myself argued for caution when making use of a hypothetical protolexikon (Renfrew 1987, 77–82). Earlier generations of archaeologists have argued that the Proto-Indo-Europeans must have been pastoralists rather than agriculturalists, on the grounds that very few words for domesticated food plants are reconstructed into the protolexikon. But more recently archaeologists have come to realise that early Eurasian pastoralists must have been familiar with the crop plants of their agricultural contemporaries. So the absence of such terms from the protolixikon must be viewed as unexplained happenstance rather than as the absence of such elements from the original environment of the Proto-Indo-Europeans. This caution on negative evidence need not, however, detract from the real significance of positive occurrences, so long as the possibility of semantic shift is borne in mind.

The linguistic relationships between neighbours in the Nostratic macrofamily would seem to carry some implications for the location of the speakers of the relevant proto-languages, some considerable time ago. Such arguments led

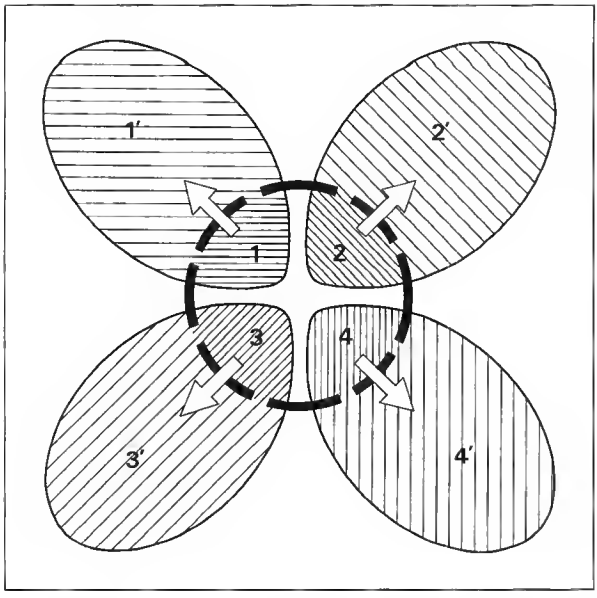

Figure 3. *Idealized model showing the relation between farming origins and language dispersal. When a transition to primary farming occurs within an area with some linguistic diversity (shown within the broken circle) the consequence of the agricultural dispersal is likely to be a series of linguistic replacements in adjoining areas. The lobes represent the areas occupied by the resulting language families derived from the corresponding proto-languages. Such processes may underlie the distribution of several of the world's linguistic macrofamilies: the corresponding version of this hypothesis for the Nostratic macrofamily is represented in Figure 4. (After Sherratt & Sherratt 1988.)*

Dolgopolsky, on purely linguistic grounds, to place the homeland of the speakers of Proto-Indo-European in central Anatolia (Dolgopolsky 1987; 1993), and led Gamkrelidze and Ivanov (1984; 1990; see Gamkrelidze 1990) to locate it in eastern Anatolia (although without adopting the Nostratic hypothesis).

I have suggested (Renfrew 1996) that the distributions of a number of the world's language families may be explained in terms of agricultural dispersals (see Bellwood 1996; Diamond 1997), and that what may hold for the Indo-European family (Renfrew 1987) might similarly be applicable to the other members of the Nostratic macrofamily. This idea is neatly summarized in a diagram devised by Andrew and Susan Sherratt (Sherratt & Sherratt 1988).

It can be suggested, therefore, that the distribution of the languages of the Nostratic macrofamily may be due, at least in part, to processes of agricultural dispersal, and that the original homeland of the Proto-Nostratic speakers lay in western Asia. It is postulated, in particular, that the speakers of Proto-Indo-European were at home in central Anatolia, and the speakers of Proto-Afroasiatic in the Levant, perhaps to be associated with the very early Neolithic of sites such as Jericho. The proposed relationship between the Dravidian languages and Elamite (McAlpin 1974; 1981) may be adduced here, and a homeland for Proto-Elamo-Dravidian located in southwestern Iran (the modern Khuzistan) suggested, where very early farming is well documented at sites such as Ali Kosh. For Proto-Kartvelian, the southern Caucasus might

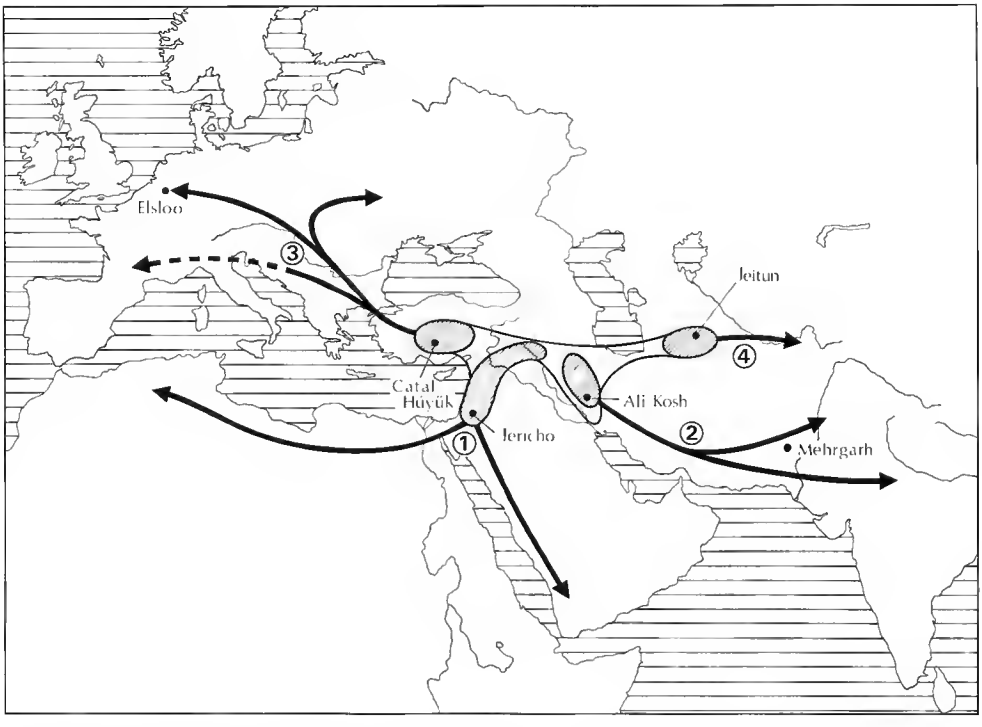

Figure 4. *Hypothetical application of the model shown in Figure 3 to account for the distribution of the Nostratic macrofamily. Agricultural dispersals of the related protolanguages originally located within the area where primary farming developed (hatched) are postulated as underlying the subsequent distributions of the (1) Afroasiatic, (2) Elamo-Dravidian, (3) Indo-European, and (4) Altaic language families.*

itself lie within the primary zone of agricultural origins, or close to it. And Proto-Altaic might have been spoken in Turkmenia, a region of very early agricultural production. If these are the points or areas of departure around 7000 BC for the early processes of farming dispersal, we can imagine a rather earlier Proto-Nostratic, perhaps already with regional dialects, spoken over a territory including most of these areas, which in particular may well have embraced the region where the Pre-Pottery Neolithic A farming economy first developed (Bar-Yosef 1989) (see Fig. 4).

The appropriate location for the speakers of Proto-Uralic-Yukaghir is less clear, and the region between the Ural mountains and the lower Ob river of western Siberia has been suggested (Hajdu 1964), with a possible dispersal northwards by speakers of the Finno-Ugrian branch to the region of northeastern Europe and the Ural mountains. Nor is it evident that its speakers were in fact agriculturalists. Professor Dolgopolsky has indicated (pers. comm.) that the lexical data

show that the speakers of Proto-Finno-Ugrian and probably of Proto-Uralic did not have agriculture, husbandry or pottery but were excellent fishermen. There was indeed a population dispersal northwards, into the Ural mountains and north-western Asia at the end of the Pleistocene period, but the economy was for long one based upon fishing and gathering as well as hunting (see Dolukhanov 1994).

Insofar as these theories involve actual movements of people they may ultimately be open to evaluation by means of molecular genetics. Already aspects of the distribution of gene frequencies in the relevant areas have suggested early population movements compatible with the suggestions made here (Barbujani & Pilastro 1993; Barbujani *et al.* 1994). Further work may well offer support and corroboration, or the converse. If the above suggestions do find support, they will offer a whole new perspective upon the prehistory of Europe, western Asia, south Asia and the Asiatic steppes, as far indeed as Korea and Japan. These are big issues.

It follows from these considerations that Proto-Nostratic would represent the language in its original area of distribution of the population at a time before these various agricultural dispersals took place, and therefore prior to the full development of the Neolithic economy. Such a view may harmonise very well with the content of the word lists developed here by Dolgopolsky which seem to represent the world of the Upper Palaeolithic or Mesolithic hunter-gatherer, apparently prior to the inception of a farming economy.

Problems with macrofamilies

These intriguing speculations are, however, predicated upon the validity of the Nostratic hypothesis. It is relevant, therefore, to take note of the criticisms which have been levelled, by competent linguists, at a number of cases where the proposed amalgamation of language families into macrofamilies is claimed to be of genetic validity.

In colloquial terms, it has been suggested that individual linguists tend to be either 'lumpers' or 'splitters'. The former are quick to see relationships, and to acknowledge the existence of larger linguistic units: they are predisposed to look favourably upon macrofamilies. The splitters, on the other hand, are meticulous in their scholarship, and apt to find fault with individual etymologies and comparisons. Having found fault they are likely to doubt the generalisation, and to place reliance instead upon smaller language units about which they can have greater confidence.

The senior historical linguist among the lumpers must be Joseph Greenberg, whose analysis of the African languages (Greenberg 1963) into just four

macrofamilies (one of them Afroasiatic, as discussed above) was initially criticized upon methodological grounds. The principal criticism was that he relies upon multiple lexical comparisons, comparing directly the words in contemporary languages, without attempting the reconstruction of the relevant proto-languages, following the well-established comparative method, according to the normal practice of historical linguists. Despite this criticism, his classification of the African languages has proved so convenient that it has been adopted almost universally, although that does not necessarily imply that all linguists see the groupings as valid genetic units rather than as simple taxonomic conveniences.

However when Greenberg turned to the languages of the Americas (Greenberg 1987) his work provoked much greater opposition, and indeed sometimes hostility (e.g. Campbell 1986). The objections were broadly the same as in the African case, but they were not so easily overcome. Interestingly there has been what seems strong support for his work from the field of molecular genetics, where 'tribal private polymorphisms' — molecular genetic particularities restricted to a single tribe — suggest not only long periods of stability and relative genetic isolation, but also some support for his overall structure of taxonomic relationships. It is perhaps too early to draw firm conclusions, but there is the hope that evidence from molecular genetics will cast more light upon population histories which may in turn have a bearing upon language history also.

In other parts of the world inclusive macrofamilies are certainly being proposed. In southeast Asia, the proposed recognition of an Austric macrofamily (Blust 1993) has formed the basis for the bold archaeological reconstruction of population movements (Higham 1996). Bellwood (1996) has noted a number of other such cases where agricultural may have been accompanied by language dispersal. But these are proposals about supposed correlations between the archaeology and the historical linguistics: they do not, in themselves, validate the existence of the proposed macrofamilies.

When it comes to the Nostratic hypothesis, some of the criticisms levelled at the work Greenberg may not hold. For both Illich-Svitych and Dolgopolsky have worked to analyze the relevant sound correspondences, very much within the tenets of the Brugmannian method. Nonetheless Anna Morpurgo Davies (1989, 167) has well expressed the reservations which a number of senior historical linguists clearly feel:

> Linguists seem to be relatively clear about what a language family is. If we say that two languages are related, i.e. ultimately derive from the same parent language, we also predict that the further back we go in time the more similar the forms of the two languages will turn out to be — this may be particularly clear for grammatical forms. If I assume that Greek and Iranian

> are related I also predict that ancient Greek must be closer to Old Persian than Modern Persian. On the other hand I do not see any reason to predict that Early Tamil (a non-Indo-European language) must be closer to Ancient Greek than to Modern Greek. We make these predictions with some confidence because over the years we have developed and tested the method which we use to demonstrate linguistic kinship. This obviously starts by comparing words but then goes back further and makes use of regular phonological correspondence and, if possible, of morphological comparison. On the other hand, if we take as an example of how superfamilies are established the latest book by J. Greenberg about the languages of America, we discover that there the methodology is very different. Greenberg does not rely on phonological or morphological correspondences, but on what he calls 'multilateral comparison', i.e. on lexical similarities studied in a number of languages at the same time. He jettisons the standard techniques not because they lead to wrong conclusions but because they do not allow him to go beyond standard families. Yet we do not know whether superfamilies established in this way have the same properties as the families established with the standard comparative method. If they do not, there is a serious risk that the whole concept of superfamily is vacuous. At the moment it is not clear to me whether this is or is not so and I would like some enlightenment.

The operational difficulty lies in each case in developing some methodology which will allow doubts and reservations about the real existence of macrofamilies to be followed through and tested. It should again be noted however that the criticisms levelled against Greenberg's method of multilateral comparison are not entirely appropriate in the case of the Nostratic macrofamily, whose exponents do indeed establish phonological correspondences, and seek to use the standard comparative method (see Anttila 1972)

It is, as Ruhlen (1991; 1994) has remarked, often the more traditional Indo-Europeanists who are most hostile to such approaches, particularly when the outcome does not harmonise with what they sometimes consider to be well established conclusions. This is well exemplified by a recent, authoritative work which pronounces as follows (Sergent 1995, 398: my translation):

> Moreover a whole school of linguists holds that Indo-European, Semito-Hamitic, the groups of languages termed 'Altaic' (Uralic, Turk, Tungus, Mongol), Dravidian, and more besides, form a single immense group termed 'Nostratic'. A Russian team has thus formed the 'Moscow Nostratic circle' to study these relationships (Dolgopolsky 1986). In reality they are based essentially on vocabulary, and the structure of the languages is scarcely considered (indeed the group called 'Altaic' is in this sense an artificial one). Among all these comparisons, only those between Indo-European and Semito-Hamitic appear to rely upon early and deep relationships.

It should be understood that such observations must perforce be based upon rather brief accounts of the Nostratic hypothesis: Sergent refers only to short articles by Dolgopolsky and Illich-Svitych. Dixon's recent and severely negative assessment ('There us no reputable historical linguist anywhere in the world, who accepts the claims of Greenberg and the Nostraticists') may work from simi-

lar limitations (Dixon 1997, 37–44). It will therefore be interesting to see whether so dismissive a tone can be maintained in face of the more ample word-lists offered here, and ultimately in the light of Dolgopolsky's forthcoming *Nostratic Dictionary*.

How to judge?

There must be some means, within the field of historical linguistics, of reaching a conclusion on such matters. It is not difficult to see that corroborative data can come from other disciplines. We have seen that statements from historical linguistics which have a bearing upon population history may well be tested by archaeological means, and in particular by applications of molecular genetics. But such applications can never tell us anything *directly* about a specific language, or about linguistic relationships *per se*.

The evidence for such familial (or macrofamilial) relationships has always come primarily from individual words, and more persuasively from collections of individual words. These are precisely what Aharon Dolgopolsky offers in the main body of his text. When words of equivalent or related meaning occur in two languages (or more), and the forms of those words suggest that, taking account of systematic sound changes, they may derive from a hypothetical common ancestor, then there is strong evidence of family relationship. Of course there are provisos about the exclusion of loan words etc. But one can at once see that such arguments in favour may be criticized on at least three grounds. First the semantic equivalence may not be so close as to inspire confidence. Secondly the proposed regularities for sound change may not be sufficiently precise as closely to determine the two versions in the two languages concerned. And thirdly the formal equivalences may not carry conviction: the similarity may not be sufficient. All these issues have to be assessed soberly for each specific case.

Already such disagreements have developed with reference to comparisons between constituent language families of the Nostratic macrofamily. Klimov (1991) criticized the equivalences between Kartvelian and Indo-European offered by Illich-Svitych for a number of words in his substantial Nostratic vocabulary. Several of Klimov's objections were, in turn, subject to criticism by Manaster-Ramer (1995) who took a more favourable view of the original proposals.

Clearly the arguments in favour may carry greater conviction when appropriately derived word forms carrying the relevant meaning are found in a whole series of languages within the macrofamily. But the sceptic may claim that when the number of constituent languages is large (as in the Nostratic case) the likeli-

hood of some apparent formal equivalences occurring here and there among them just by chance is commensurately greater. Ultimately these are questions in the field of probability, but they are very difficult to assess quantitatively.

Perhaps all that one may hope for is precisely what Dolgopolsky here offers: a large number of concrete cases presented for our consideration. To a layman it seems improbable in the extreme that the equivalences which he shows would be the product of purely random variations among words which in fact have no genetic relationship. But that is an assessment by a non-specialist. What we await is the judgement of specialists. There is no doubt that the Nostratic hypothesis, if considered valid, is of the highest interest to prehistorians, and indeed to those concerned with population history, as well as to historical linguists. But it is for the historical linguists in the first instance to decide whether the evidence on offer is sufficient to lead to the general acceptance of the hypothesis.

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The Nostratic Macrofamily and Linguistic Palaeontology

Aharon Dolgopolsky

Classification of the Nostratic languages

Classification of the Nostratic languages

I. Indo-European

A. *Anatolian*: Hittite, Luwian, Hieroglyphic Luwian, Palaic, Lydian, Lycian;

B. *Narrow Indo-European*: (1) Indo-Iranian (Aryan): [1a] Indo-Aryan: Old Indian, Middle Indian (Pali, Prakrits), New Indo-Aryan lgs., [1b] Iranian: Avestan, Old Persian, Middle Persian (Pahlavi), New Persian, Tajik, Kurdish, Sogdian, Yaghnobi, Pushtu (Afghan), Pamir languages (Wakhi, etc.), Khotan Saka, Old Scythian, Ossetic, etc., [1c] Nuristani and Dardic languages (incl. Kafiri); (2) Greek, Macedonian; (3) Phrygian; (4) Thracian, Dacian, Albanian; (5) Illyric, Messapic; (6) Italic: Latin (with the Romance languages), Oscan, Umbrian; (7) Venetic; (8) Celtic: Gaulish, Celtiberic, Goidelic (Old Irish, Middle Irish, [New] Irish, Scottish Gaelic), Brythonic (Welsh, Cornish, Breton); (8) Germanic: Gothic, Old Runic Scandinavian, Old Norse, Icelandic, Faroese, Swedish, Danish, Gutnian, Norwegian, Old High German, Middle High German, New High German, modern German dialects, Yiddish, Old Saxon, Middle Low German, Dutch (with Afrikaans), Anglo-Saxon (Old English), Middle English, English; (9) Balto-Slavic: [9a] Baltic: Lithuanian, Latvian, Prussian, [9b] Slavic: Old Church Slavonic, Church Slavonic, Bulgarian, Macedonian Slavic, Serbo-Croatian, Slovene, Czech, Slovak, Low Lusatian (Low Sorbian), High Lusatian (High Sorbian), Polabian, Polish, Old Russian, Russian, Belorussian, Ukrainian; (10) Armenian; (11) Tocharian.

II. Hamito-Semitic (Afroasiatic)

A. *Semitic*: (1) Eastern Semitic: Akkadian, (?) Eblaitic; (2) Central Semitic: [1] Canaanite: Old South Canaanite, Hebrew, Phoenician (with Punic), Ugaritic, Amorite, etc., [2] Aramaic lgs.: Old Aramaic, Imperial Aramaic, Jewish Aramaic, Syriac, Mandaic, etc., [3] Arabic, Maltese, Thamudic, Safa'itic, etc.; (3) South Semitic: [1] Old South Arabian (Sabaic, Minaean, Qatabanic, Himyaritic, etc.), Ethiosemitic: Old Ethiopian, Ge'ez, Tigre, Tigray (Tigrinya), Amharic, Harari, Gurage lgs., etc., [2] South-East Semitic: Mehri, Harsusi, Jibbali, Soqotri, etc.;

B. *Egyptian*: [Ancient] Egyptian, Demotic Egyptian, Coptic;

C. *Berber*: Old Libyan (Numidian), Twareg (Ahaggar Twareg, Eastern Tawellemmet, Tayert, Ghat, etc.), Kabyle, Tashelhit, Tamazight, Rif, Beni-Iznacen, Srar-Senhazha, Mzab, Wargla, Nefusi, Siwa, Ghadamsi, Aujila, etc.; Guanche;

D. *Cushitic*: (1) Beja; (2) Agaw (= Central Cushitic): Awngi, Bilin, Kemant, Kwara, Khamir (Khamtanga), etc.; (3) East Cushitic: [1] Lowland East Cushitic: Afar, Saho, Somali, Boni, Rendille, Baiso, Oromo (Galla), Konso, Gidole, Arbore, Dasenech, Dullay cluster (Tsamay, Hollango, Gawwada, Harso, etc.), Yaku, [2] Highland East Cushitic: Sidamo, Darasa, Hadiya, Kambatta, Burji, etc., (4) Dahalo (not yet classified): (5) South Cushitic: [1] Iraqw, Alagwa, Gorowa, Burunge, [2] Asa, Kwadza, as well the Cushitic layer of loanwords within Mbugu;

E. *Omotic*: (1) North Omotic: Kaffa, Mocha, Anfillo, Shinasha, Ometo dialect cluster (Gofa, Wolayta, Dawro, Oyda, Basketo, Badditu, Doka, Zayse, Kachama, Chara, Ganjule, Zergulla, Male, Dache, Gamu, etc.), Janjero, Bench, She, etc., (2) Dizoid: Maji, Na'o, Shako, (3) South Omotic: Ari, Bako, Dime, Hamer;

F. *Chadic*: (1) West Chadic: [1a] Hausa, Gwandara, [1b] Angas-Goemay: Angas, Sura, Goemay (Ankwe), Kofyar, Montol, Yiwom (Gerka), Chip, Tal, etc., [1c] Bole-Tangale: Bole, Dera, Karekare, Tangale, Pero, Kirfi, Bele, Gera, etc., [1d] Ron gr.: Bokkos, Daffo, Butura, Fyer, Kulere, Sha, Tambas, [1e] North Bauchi lgs.: Warji, Tsagu, Kariya, Mburku, Miya, Pa'a, Siryanchi, Diri, Jimbin; [1f] South Bauchi: Boghom, Dwat, Guruntum, Jimi, Polchi, Saya, Wangday, Zar, Kir, Dira, Geji, etc., [1g] Ngizim, Bade, Duwai: (2) Central Chadic: [2a] Tera gr.: Tera, Ga'anda, Pidlimti, etc., [2b] Bura-Margi gr.: Margi, Bura, Chibak, Kilba, Wamdiu, etc., [2c] Higi gr., [2d] Bata-Bachama gr.: Bata (Bata-Garua & Bata-Demsa), Bachama, Nzangi, Gude, Gudu, Fali of Jilbu, Fali of Muchella, Fali of Bwagira, Mwulyen, etc., [2e] Lamang, [2f] Mandara gr.: Mandara, Dghwede, Glavda, Gava, Nakatsa, Padokwo, etc., [2g] Sukur, [2h] Matakam gr.: Giziga, Mafa, Mofu-Gudur, Matakam, etc., [2i] Daba, Kola, Musgoy, [2j] Gidar, [2k] Kotoko: Logon, Kotoko, Buduma, Affade, etc., [2l] Musgu gr,: Musgu, Musgum-Pus, Mulwi, etc., [2m] Masa lgs.: Masa, Bana, Banana, Lame, Lame-Peve, Zime, Zime-Batna, etc.; (3) East Chadic: [3a] Kera, Kwang, [3b] Kabalay, Lele, [3c] Somray, Ndam, Tumak, [3d] Sokoro, [3e] Dangla, Bidiya, Mokilko, Migama, [3f] Mubi, Jegu, Birgit.

III. Kartvelian

(1) Old Georgian, Georgian; Zan: Megrelian, Laz, (2) Svan.

IV. Uralic (Uralo-Yukagir)

A. *Finno-Ugrian*: (1) Finno-Permian: [1a] Finno-Lappish; {1aα} Balto-Finnic: Finnish, Karelian, Estonian, Livonian, etc., {1aβ} Lapp (Lappish), [2] Erzya-Mordvin and Moksha-Mordvin, [3] Cheremis, [4] Permian: Old Permian, Ziryene, Permyak, Yazvian dial., Votyak; (2) Ugrian: [2a] Hungarian, [2b] Ob-Ugrian: Vogul and Ostyak;

B. *Samoyedic*: (1) Nenets, Enets, Nganasan, (2) Sölqup, (3) Kamassian, Koibal, (4) Mator-Taigi-Karagas;

C. *Yukagir*.

V. Altaic

A. *Turkic*: (1) Bulghar gr.: Old Bulghar, Chuvash; (2) Narrow Turkic: Old Turkic, Middle Turkic, Old Uighur, [2a] Oghuz: Old Osman, Middle Osman, Osman Turkish, Turkish, Gagauz, Azeri, Türkmen, Salar, etc., [2b] Qïpchaq: Old Qïpchaq, Middle Qïpchaq (incl. Cumanic), Qumïq, Qarachay-Balqar, Crimean Tatar, Karaite, Volga Tatar, Siberian Tatar dialect cluster, Bashqurt (Bashkirian), Noghay, Qazaq, Qaraqalpaq, etc., [2c] Qïrgïz, Standard Altay, Altay-Kizhi, Qumanda, Quu-Kizhi, Teleut, [2d] Chaghatay, Uzbek, East Turkic (New Uighur), [2e] Khakas, Saghay, Qacha, Shor, Chulïm, Beltir, Sarïg-Yugur, [2f] Tuva, Tofalar, [2g] Yakut, [2h] Khalaj;

B. *Mongolic*: Middle Mongolian, Classical (Written) Mongolian, Halha-Mongolian, Buryat, Classical (Written) Oirat, (New) Oriat, Kalmuck, Ordos, Dagur, Monguor, Dongxiang (Tunghsiang), Baoan, Old Moghol, Moghol;

C. *Tungusic (Manchu-Tungus)*: [1] Ewenki, Negidal, Solon, Lamut, [2] Nanay, Orochi, Ulcha, Ude, Orok, [3] Manchu: (Classical [Written] Manchu, spoken Sibe Manchu), Jurchen;

D. *Korean*;

E. *Japanese*.

VI. Dravidian

(1) South Drav.: Tamil, Malayalam, Kota, Toda, Tulu, Kannada, Kodagu, (2) South-Central Drav.: Telugu, Gondi, Konda, Manda, Pengo, Kui, Kuwi, (3) Central Dravidian: Gadba, Kolami, Naiki of Chanda, Naikri, Parji, (4) Northern Drav.: Kurukh, Malto; (5) Brahui.

For a more detailed and comprehensive classification of languages (and dialects) *cf.* my *Nostratic Dictionary* (in preparation).

The Linguistic Palaeontology of the Nostratic Macrofamily

Transcription signs and other symbols

In my papers I distinguish between transcription (rendering the phonemes and allophons of the language in question) and transliteration (rendering the characters of the original script). For transcription (as well as for reconstructions) a unified transcription script is used: a, b, c, d, e, etc., while for transliteration (as well as for rendering the original Roman spelling of the language in question and for literal quoting of other scholars) a special transliteration-quotation script is used: a, b, c, d, e, etc.

The transliteration is either traditional (for languages with long scholarly tradition of transliteration, such as Old Indian, Avestan, Gothic, etc.) or partially approaching our transcription system (e.g. for Egyptian we use z, s, ẖ, x, x́, c and ʒ instead of Erman-Grapow's s, ś, ḥ, ḫ, ḫ̱, t̠ and d̠ respectively, for the ancient Semitic languages we use ẖ, x, ɣ, θ, ð, θ̣ and ŝ instead of the traditional ḥ, ḫ, ġ, t̠, d̠, ẓ and d̠ of the Orientalistic transcription). For Tamil, Malayalam, Tulu, Kannada and Telugu we use the traditional indological transliteration.

Main transcription signs:

I. Consonants:

ʔ — glottal stop; ʾ — weak glottal stop, sub-phonemic glottal stop, glottal stop as a feature of an adjacent phoneme; ʕ — epiglottal voiced approximant (Arabic ع); b̓ (= ɓ) — injective glottalized or preglottalized b; β (= b̲) — fricative b; c — voiceless hissing affricate (= t͡s), like german z in Herz; c̓ — glottalized (ejective) c, Nostratic emphatic c; ć — palatal (or palatalized) voiceless sibilant affricate (≈ Polish ć); ć̓ — ejective ć, Nostr. emphatic ć; č — voiceless hushing affricate (like English ch); č̓ — ejective č, Nostr. emphatic č; ĉ — voiceless lateral affricate; ĉ̓ — ejective lateral affricate, Nostr. emphatic ĉ; c̀ (in proto-Kartvelian) = Klimov's c_1; c̀̓ (in proto-Kartvelian) = Klimov's c'_1; ƈ — voiceless palatal stop (like Hungarian ty); ƈ — voiceless lingual affricate (without phonemic distinction between c, ć, č and ĉ) or a voiceless palatal or sibilant consonant (without phonemic distinction between affricates and ƈ or between sibilant affricates and pure [fricative] sibilants); d̓ (= ɗ) — injective glottalized or preglottalized d; d̲ — uvularized ('emphatic') d, like Modern Standard Arabic ض; δ (= d̲) — voiced fricative dental (English th in this, Spanish d in nada); δ̲ — uvularized ('emphatic') δ, like Arabic ظ; ḍ = postalveolar (cacuminal, cerebral, retroflex) d; ɸ (= p̲) — fricative voiceless bilabial consonant (bilabial f); g̓ (= ɠ) — injective glottalized or preglottalized g; g = voiced uvular stop; ɣ — voiced velar fricative (fricative g), like in Spanish trigo; ɣ — voiced uvular fricative (like Arabic غ); ɣ̲ — uvularized

('emphatic') voiced uvular fricative; ħ — voiceless epiglottal fricative (like Arabic ح = ḥ of the Orientalistic Transcription); j — voiced palatal fricative (like the initial consonant in French hier [jɛʁ]); ɟ — voiced palatal stop (like Hungarian gy); kˀ — ejective k, Nostr. emphatic k; ĺ — palatal (or palatalized) l, like Italian gli in voglio; ɭ — postalveolar (cacuminal, cerebral, retroflex) l; ɬ — velarized l (like Russian л); ɬ̥ — voiceless l; ɬ̥ˌ — voiceless l̥; ʎ - a special type of palatal l (different from ĺ), as in Uralic and Finno-Ugrian, where *ʎ stands for the traditional (FUV) *δ́- (in the word-initial position); ɾ — consonant intermediate between r and l; ŋ — velar or uvular nasal consonant (like ng in English long); ń — palatal (or palatalized) n, like French gn in régner; n̲ — alveolar n (like Tamil ந); ɳ (= n̢) — postalveolar (cacuminal, cerebral, retroflex) n; pˀ — ejective p̣, Nostr. emphatic p; q — voiceless uvular stop (like Arabic ق); q̣ — ejective uvular stop, Nostr. emphatic q; ɾ — cerebral flap or tap (like Spanish r in cara, or like Hausa r in sarki); r̲ — alveolar trill (in contrast to post-dental) [r̲ = r̲ of Dravidianist notation]; ʀ — uvular flap or tap; ʁ — uvular trill (like German r); š — voiceless hushing sibilant (like English sh); ś — palatal (or palatalized) s (≈ Polish ś, Russian сь); ŝ — voiceless lateral consonant; ş — uvularized ('emphatic') s, like Arabic ص; tˀ — ejective t, Nostr. emphatic t; ṭ — postalveolar (cacuminal, cerebral, retroflex) t; t̰ — uvularized ("emphatic") t, like Arabic ط; θ (= t̲) — voiceless dental (or interdental) fricative (like English th in thin); θˀ — ejective θ̣; x (= k̲) — voiceless velar fricative (like Russian х); χ — voiceless uvular fricative (like Spanish j and Arabic خ) = ḫ of the Orientalistic Transcription; y — palatal approximant (like y in English yes); z — voiced hissing sibilant (like in English zoo); ž — voiced hushing sibilant (like French j); ź — voiced palatalized sibilant (like Polish ź or Russian зь); ẓ — uvularized ('emphatic') z, like in Berber (ẓ of the Orientalistic Transcription); ẑ — voiced lateral fricative; ẓ̂ (= ẑ̰) — uvularized ('emphatic') ẑ (or ẑ̰), like 8th cent. Arabic ض; ʒ — voiced hissing affricate (= d͡z), like in Italian zoologia; ǯ — voiced hushing affricate (like English j); ǵ — voiced palatal (or palatalized) affricate (like Polish dź); ʒ́ (in proto-Kartvelian) = Klimov's $ʒ_1$; ʒ̂ — voiced lateral affricate; ʒ — voiced lingual affricate (without phonemic distinction between ʒ, ʒ́, ǯ and ʒ̂) or a voiced palatal or sibilant consonant (without phonemic distinction between affricates and j or between sibilant affricates and pure [fricative] sibilants).

Laryngeal consonants of Early Indo-European: h — weak (yielding zero in Anatolian Indo-European) a-colouring laryngeal (≈ Puhvel's $*A_2$); h̄ — weak (yielding zero in Anatolian) e-colouring laryngeal (≈ Puhvel's $*E_2$); h^w — weak (yielding zero in Anatolian) o-colouring laryngeal (≈ Puhvel's $*A_1{}^w$); x —

strong (yielding h, h h in Hittite) a-colouring laryngeal (≈ Puhvel's $*A_1$); x͡ — strong (yielding h, h h in Hittite) e-colouring laryngeal (≈ Puhvel's $*E_1$); x^w — strong (yielding h, h h in Hittite) o-colouring laryngeal (≈ Puhvel's $*A_2{}^w$); H = h|x; H͡ = h͡|x͡; $H^w = h^w|x^w$; h — weak laryngeal (lost in Anatolian) of unknown colouring (≈ Puhvel's $*H_2$); X — strong laryngeal (yielding h, h h in Anatolian) of unknown colouring (≈ Puhvel's $*H_1$); ʔ — weak laryngeal (yielding zero in Anatolian), lost in zero-grade of apophony (unlike all other laryngeals, which yield Narrow Indo-European *ə in the zero-grade of apopony); H — unspecified laryngeal (≈ Puhv.'s *H).

2. Vowels:

ä (= æ) — front low vowel; å —vowel intermediate between ä and a; å — labialized low vowel; ɐ — high a; ɑ - back a; ʌ — central low-mid vowel (in Korean ʌ = Korean {Lee} ʌ, {Starostin} ă, {Ramstedt} ą); ɛ — front low-mid vowel; ə — ultra-bref (reduced) central vowel, or ultra-bref vowel without phonologic distinction of quality (in Chuvash ə = orthographic ĕ); ɘ — back mid vowel (like Estonian õ; in Korean ɘ = Korean {Lee} ə, {Starostin} ə, {Ramstedt} ę); ɩ — low i (like i in English bit); ɨ — high mid vowel (like Russian ы); ɪ— high back vowel (as Turkish ı); ɔ — labialized back low-mid vowel (like British English o in dog); ö (= œ) — labialized front mid vowel (labialized e); ɔ̈ — labialized front low-mid vowel (labialized ɛ); o̰ — vowel intermediate between ö and o; ɯ, ɯ̽ (= o˺) — high o, intermediate between o and u; ɵ — centralized o; ◦ — non-phonemic vocoid; ₒ — non-phonemic vocoid (schwa secundum) in proto-IE; ̯ — preconsonatic voiceless vowel glide (as in Lappish) [the same sign is used when the final part of the preceding vowel is voiceless (as in Lule-Lappish, as described by Wiklund: ̯ = Wiklund's ↄ)]; ʊ — low u; ü — labialized front high vowel (labialized i), like German ü and French u; ʏ —labialized front lowered high vowel (labialized ɩ); u̯ - vowel intermediate between ü and u; ʉ — centralized u; ъ — ultra-short back vowel (= ə͡ of the Finno-Ugric Transcription) [ъ = Chuvash ă, Volga Tatar and Bashqurt short ы, High Cheremis ы]; ъ° — ultra-short rounded back vowel (= Volga Tatar and Bashqurt o); ь — ultra-short (reduced) front vowel [ь = Volga Tatar, Bashqurt ɜ, e (after a consonant)]; ь° — ultra-short rounded front vowel (= Volga Tatar, Bashqurt ɵ); ɜ — central mid vowel.

3. Diacritical signs:

(1) with consonant letters:

ˀ (sˀ, tˀ, bˀ) — glottalization (both ejective and voiced injective), including preglottalization, in Nostratic reconstructions it denotes an emphatic

articulation (without commitment as to its exact phonetic articulation: glottalization, aspiration or tenseness); ˷ (ḏ, ẓ, ṯ) — uvularization ('emphasis', as in Arabic and Berber); ʿ (to the right of the letter: tʿ, kʿ, pʿ) — fortis; ˉ (to the right of the letter: t̄, k̄, p̄) — lenis; ʰ (to the right of the letter: tʰ, kʰ, pʰ)— aspirate; ʰ (to the left of the letter: ʰt, ʰt, ʰt) — preaspirate; ˍ (to the right of the letter: b̲, g̲, d̲, z̲, r̲, l̲, m̲, n̲, ŋ̲) — devoiced or half-voiced = small caps of the Finno-Ugric Transcription; ˍ (under the letter: b̲, d̲, g̲, k̲, p̲, t̲, q̲) — fricativity resulting from lenition (fricative variants of phonemes or morphophonemes, as in Hebrew, Aramaic and Berber); ˬ (t̬, d̬, n̬) — alveolar (in contrast with dental or post-dental) consonant [t̬, d̬, n̬ = t̲, d̲, n̲ of the Dravidianist notation]; ʸ (to the right of the letter: kʸ, gʸ, χʸ) — palatalization; ¨ (over the letter) or ˙ (to the right of the letter) — weak palatalization (e̮-palatalization); ʷ (to the right of the letter: kʷ, gʷ, χʷ) — labialization; ˜ (over the letter) — nasalization; ˋ (s̀, ǹ, etc.) = ˛ (ṣ, ɭ, etc.) — postalveolar or retroflex consonants; ŝ, ẑ, s̓ —domal infradental infralabialized sibilants, like in Central Jibbali (Johnstone's s̪̃, z̪̃, ṣ̪̃) or in Twi (Ghana) [ŝ = [ɬ] of the IPhA transcription];

(2) with vowel letters:

˜ denotes nasality: ã = nasal a [in Slavic languages nasality is denoted by a cedille: ą = ã]; ̓ (over the letter) denotes creaky phonation of vowels: ɪ̓ is creaky ɪ (and Tuva ыъ), while i̓ is creaky i (and Tuva иъ); ʾ and ʰ (before the letter) denote "interrupted" vowels (in Ude) (the sign chosen in accordance with the source: ʰ if the source indicates a kind of h); ˛ (under the vowel letter) denotes close vowels (e˛ = ɳ, closed e) [in Tungusic it denotes vowels of the higher series of synharmonism]; ˍ (under the vowel letter) denotes open vowels (e̲ = ɛ) [in proto-Tungusic and Tungusic languages it denotes the vowels of the lower series of vowel harmony]; ˂ denotes retracted vowels (a˂ = retracted a); ˃ denotes advanced vowels (a˃ = advanced a); ˬ (under the letter) — broadened vowel; ˆ (under the letter) — narrowed vowel; ¨ denotes front vowels (ä, ü, ö); ˙ denotes half-front vowels (ȯ, u̇); ̮ denotes glides (English my [maɪ], Spanish bien [bi̯en], bueno ['bu̯eno]); ˍ (to the right of the vowel letter) denotes devoiced vowels (as in Japanese and Oromo prosody).

4. Quantitative differences of vowels:

Vowel letters without diacritics of length or shortness denote short vowels (in languages with an opposition short vs. long) and normal ('full') vowels (in languages with an opposition normal vs. ultra-short and with a triple opposition long vs. short vs. ultra-short) [an exception: special letters for

ultra-short (reduced) vowels ə, ъ, ь]; ˘ is a sign for short vowels, e.g. ă; ˘ (on the higher supralineal level) denotes an ultra-short vowel, e.g. a̯; letters followed by · denote half-long vowels; letters with a macron ¯ or with a following colon : denote long vowels; letters followed by :· denote ultra-long vowels.

5. Tones and stress

ˈ (before the syllable) — full stress; ˌ (before the syllable) — weak stress. The tones are denoted mostly by supralineal signs over vowels, e.g. by signs of the second supralineal level (higher than regular supralineal signs): ˊ — high tone [in Korean and Japanese this sign is quoted after Starostin's papers]; ˋ —low tone [in Kor. and Jap. this sign is quoted after Starostin's papers]; ˈ — middle tone; ˊ — falling high-to-mid tone; ˆ — falligh high-to-low tone; ˋ — falling mid-to-low tone; ˇ — rising low-to-high tone; ˎ — rising low-to-mid tone; ˊ — rising mid-to-high tone (mid rise tone); ˝ – high rise tone (as in Wedekind's records of Janjero); ˏ — very low tone; ˝ —very high tone. In proto-Slavic reconstructions the syllabic intonation (Slavic accents) are denoted according the Slavistic tradition.

6. Uncertainty signs, signs of reconstruction

| "or" (a|e means "a or e").

Capital letters denote classes of phonemes: P = unspecified labial stop, T = unspecified dental stop, K˺ = k˺|q̣, H = unspecified laryngeal, X = ẖ|χ, Γ = ʕ|ɣ, L = unspecified lateral resonant, R = unspecified vibrant, flap or tap, N = unspecified nasal consonant; C = unspecified affricate, Ʒ = unspecified voiced affricate, S = unspecified sibilant (or lateral obstruent) [s, ś, š, ŝ, z, ź, ž, ẑ, Kartv. s̀], Ẑ = ẑ|ʒ̂, U = unspecified round vowel, E = unspecified front vowel.

∇ (or ∨) is un unspecified vowel.

⊥ (in reconstructions) is an unspecified consonant; in formulas we use C as a general sign for consonant.

ɤ̆ is an unspecified back vowel (or unspecified non-front vowel).

⌜⌝ — uncertainty brackets: ⌜a˺ = a or similar.

⌞⌟ — uncertainty brackets: ⌞a⌟ = a or nothing.

* — sign of reconstruction.

*° — a reconstruction based on one daughter- or granddaughter-language only.

** — a questionable reconstruction or a result of "internal reconstruction".

? — a questionable Nostratic etymology, or a questionable cognate.

?ơ — a semantically doubtful connection.

?ψ — a phonetically doubtful connection.

?μ — a morphologically doubtful connection (the derivation is not clear, the root structure is deviant, etc.).

amb — a word\root is ambiguous, i.e. may have two (or more) different etymologies.

¿ — a questionable reconstruction of a daughter-language, or (before '...') a questionable semantic interpretation of a reconstructed or an attested word; 'the sign '¿' before a language name means that the very existence of the form in question is dubious.

ι — a possibly ideophonic root (incl. onomatopoeic and Lallwort).

⁎ — sign of a non-existing form or a non-existing meaning.

err. — erroneously.

7. Other signs

✓ — consonantic verbal root (in the Hamito-Semitic languages); ~ — variant forms; ≙ — dialectal variants; / — apophonic and other morphological variants of a root\stem distributed according to their morphological function; \ = "or", "and\or" (e.g. in definitions of meaning and among alternative hypothetic reconstructions); -b→ — source of borrowing, borrowed to (**a** -b→ **b** = '**b** borrowed from **a**'); ←b- — borrowed from (**a** ←b- **b** = '**a** borrowed from **b**'); -d→ — source of derivation (**a** -d→ **b** = '**b** derived from **a**'); ←d- — derived from (**a** ←d- **b** = '**a** derived from **b**'); || — bar between primary families of languages (Hamito-Semitic, Kartvelian, Indo-European, Uralic, Altaic, Dravidian, Elamic); ||| — bar between secondary families (Anatolian IE, Narrow IE, Semitic, Egyptian, Cushitic, Chadic, Finno-Ugrian, Samoyed, Yukagir, Turkic, Mongolian, Tungusian, Korean) within one family: e. g. Turkic ||| Mongolic ||| Tungusic (within Altaic); ¦¦ — bar between branches of families (e.g. Germanic, Balto-Slavic, East Cushitic, Central Chadic, Finno-Permian, Ugrian); ¦ — bar between subbranches (e.g., Slavic [within Balto-Slavic], Iranian [within Indo-Iranian], Baltic Finnic, Ob Ugrian, Bole-Tangale); ¶ — sign preceding comment referring to a secondary family; ¶¶ — sign preceding comment referring to a primary family; ◇ — sign preceding comment referring to a Nostratic etymon; ÷ = 'akin to', 'a cognate of'.

The Linguistic Palaeontology of the Nostratic Macrofamily

1. The Nostratic macrofamily

This is a hypothetic macro-family of languages, including Indo-European, Hamito-Semitic [= Afroasiatic] (Semitic, Egyptian, Berber, Cushitic, Omotic and Chadic), Kartvelian, Uralic (Finno-Ugric, Samoyed and Yukagir), Altaic (Turkic, Mongolic, Tungusic [Manchu-Tungus], Korean and Japanese), and Dravidian. The hypothesis is based on a large amount (more than 2000) of common roots and many common grammatical morphemes, in which regular sound correspondences have been established (*cf.* Illich-Svitych 1967; 1968; 1971–84; Dolgopolsky 1964; 1969; 1970; 1984; 1989; 1992; 1995). Among the most important resemblances is that of personal pronouns and inflectional person-markers of the 1st and 2nd persons (*mV for 'I' in Indo-European, Uralic, Altaic and Kartvelian, *t̤ü > *t̤i for 'thou' in Indo-European, Hamito-Semitic, Uralic, Mongolic, etc.), that of interrogative pronouns (originally *k̤o for 'who' and *mi for 'what', preserved entirely or partially in Indo-European, Hamito-Semitic, Kartvelian, Uralic and Altaic), basic lexical roots such as *ʔeśo 'stay' (> 'be') preserved in Indo-European (*es-), Hamito-Semitic, Uralic and Kartvelian, *ʔitä 'to eat' (Indo-European, Ham.-Sem., Mongolic), *bari 'to take' (all branches except Uralic), *wetV 'water' (all branches except Kartvelian), *nimʔV 'name, to name' (Indo-European, Hamito-Semitic, Uralic, Altaic), as well as words connected with culture of the final palaeolithic age, e.g., *kälu 'woman of another moiety' > words for 'daughter-in-law', 'sister-in-law' and 'bride' in Indo-European (Latin glos, Greek γάλως, Slavic *zolv-), Semitic, Uralic, Altaic and Dravidian. The original Nostratic phonology (as reconstructed by V. Illich-Svitych and A. Dolgopolsky) had a rich consonant system (opposition of voiced — voiceless — emphatic [= ejectives or fortes], three series of sibilants and affricates, lateral obstruents, laryngeal, pharyngeal and uvular consonants) and 7 vowels. The grammatical structure was, most probably, analytical with a rigid word order (a sentence-final verb, attribute precedes its head, pronominal subject follows its verb) and with grammatical meanings expressed by word order, postpositions (*nu for genitive, *ma for marked accusative, and others) and grammatical pronouns.

2. Language relationship and history

What historical evidence is provided by comparative linguistics?

A. The very fact of certain languages being related suggests that the corresponding ethnic entities had some sort of historical connection: either common origin or at least intimate cultural relationship (the latter for the case of transmitting a language to neighbours, conquered peoples, etc.). If there is an Indo-European language family, it means that there had to be an ancient linguistic community of speakers of Proto-Indo-European and there were historical conditions responsible for the common origin of different Indo-European descendant languages.

B. Loanwords in a language provide evidence for cultural connections between the borrowing and the lending language. If the loanwords denote trade articles, they suggest routs of ancient trade. If they are not names of merchandise, they prove that the two language communities were neighbours. Semitic loanwords in proto-IE, Indo-European loan-words in Kartvelian, absence of proto-Indo-European loanwords in Uralic, proto-Aryan (proto-Indo-Iranian) loans in Finno-Ugric are very important arguments helpful in resolving the problem of the Indo-European homeland (*cf.* Dolgopolsky 1975; 1987; 1988; 1993; the results coincide with those of Renfrew 1987).

C. The analysis of meaning of the words present in a proto-language (the common ancestor of languages in a family) casts some light on the way of life, geographical, historical and cultural parameters of the corresponding linguistic community. The traditional name of this field in linguistics is *palaeontology of language,* or *linguistic palaeontology* (*cf.* Pictet 1859–1863, Pisani 1938), or (in reference to Indo-European) *Indo-European antiquities* (Schrader 1901).

In dealing with linguistic paleontology we must be aware of dangers resulting from the unsteadiness of meanings of words, from the very fact that every language is adapted to the communicative requirements of the corresponding society and epoch, and therefore may lose words and meanings which were important in the remote past, but are not any more today. When feathers as an instrument of writing were replaced by metallic pens, the word for 'feather' was transmitted to 'pen' (French `plume`, German `Feder`, Russian `pero`, etc.). The Samoyeds of today use the ancient word for 'arrow' to denote the bullet. If the concepts and meanings which were important in the past, but are not any more today, the language often cannot afford the luxus of preserving special roots for such out-of-day concepts and meanings and replaces them by more economic (from the point of view of memory) derived or compound words and phrases. Thus, the ancient rich and complicated system

of kinship terms for relatives by marriage (important in a patriarchal society of clans and large families) is replaced in modern English by -in-law-constructions, and in French by beau-/belle-compounds. Instead of the Indo-European words *daḭwēr 'husband's brother', *syēu̯ros 'wife's brother' and *sweliyos 'wife's sister's husband' the English say indiscriminately brother-in-law, and the French use the courteous construct beau-frère. For the Indo-European *ĝ͡lōus 'husband's sister' and *yenətēr 'husband's brother's wife' the English say sister-in-law, and the French say belle-sœur (which is gallant for ladies, but useless for historical linguistics) [*cf.* Delamarre 1984, 38–43]. Sometimes ancient words are preserved, but precious semantic nuances have been lost. Thus, we can reconstructs scores of Nostratic words for cutting, and we may guess that there were semantic differences between them (different ways of cutting, directions of cutting, material of cutting, goals of cutting), but all these 'subtle' differences (subtle for the modern languages, but precious for historians and relevant for those ancient people) have been lost. In this respect we the linguists may envy the archæologists who have direct information about the ancient tills and ways of cutting. *Verba volant, lapides manent.*

Nevertheless, comparative linguistics (making use of historical phonology, morphology, and typology of semantic changes) can provide important information or at least confirm the existing archæological and anthropological information about ancient people, their life and culture.

3. Where and when?

Let us try to use linguistic palaeontology of the Nostratic macrofamily in order to determine the geographical and temporal parameters of the common Nostratic linguistic community.

3.1. Where?

The reconstructible Nostratic lexical stock (according to my comparative dictionary — in preparation) suggests subtropical climatic conditions in the original home of Nostratic. A Middle European or Siberian homeland is ruled out by words like *ʔibrE 'fig tree', *SiwVŋgE 'leopard', *ʔrüˀrVwV 'leopard' or 'lion', *ç̣rˀibVɣV 'hyena', *ʔorˀuˀ and *gurHa (below #[36]) 'antelope', etc. Tropical countries are ruled out by words for *šüŋU and *čaĺ̥U̯gV 'snow', *ḳ̣ir̥u̯qa 'ice', *č̣rˀaˀRʔV 'hoarfrost', etc.

[1] *ʔibrE 'fig tree' > **Hamito-Semitic**: Semitic *ʿʾʔibar- > Arabic ʔibr-at- 'sycomore tree' (pl. ʔibar-) ||| Cushitic: Oromo abru 'fig tree' ||| Chadic: Giziga ʔurof ~ ʔɜrof 'sycamore tree'; ? Hausa ɓaure (<*ḅabre), with ḅ > *ʔb; ? Migama bấrá (pl. bàrrì) 'figuier (rouge)' || **Dravidian** *ir-~ iṟ- 'fig (tree)' > Tamil iratti 'joined ovate-leaved fig', 'subserrate rhomboid-leaved fig, *Ficus gibbosa tuberculata*', iratakam 'joined ovate-leaved fig', iṟali 'white fig', iṟṟi 'tailed ovate-leaved fig', itti 'white fig, *Ficus infectoria*', 'stone fig, *Ficus talboti*', Malayalam itti 'waved leaved fig-tree, *Ficus venosa*', Kodagu itti '*Ficus* (*gibbosa*?)' (< -tt-*-rt-).

[2] *ĉʿiʾbɣ (or *ĉʿiʾbʕ) 'hyena' > **Hamito-Semitic**: Semitic *ʿṣabuʕ- ~ *ṣaʿbuʕ- id. > Post-Biblical Hebrew (Babylonian tradition) ṣāʿbōʕ, Biblical Hebrew (Masoretic trad.) צָבוּעַ ṣāʿḇūᵃʕ 'hyena' (popular etymology interpreting the word as a passive participle צָבוּעַ ṣāʿḇūᵃʕ 'a died one'), pl. צְבוּעִים ṣəḇōʿʕ-īm, Syriac ʔaṣʕ-ā (ʔ- < ʕ- by dissimilation), Arabic ضَبُع ẓabuʕ- ~ ضَبْع ẓabʕ-, Ge'ez ፅብዕ ṣəbʕ 'hyena' || **Altaic**: Tungusic *ʗibpka > Ayan Ewenki ʗipkaku 'wolf' || **Dravidian** *civŋki 'hyena, tiger-wolf' or sim. > Kannada sivaŋgi 'tiger-wolf, hyena', Telugu civãgi, civvãgi, civvaŋgi, sivãgi, sivaŋhi, sivvaŋgi 'hyena', as well as Tamil civiŋki 'Indian lynx, hunting leopard', Malayalam civiŋŋi 'hunting leopard' ◇ In Drav. there is coalescence of the etymon in question and Nostr. *SiwŋgE 'leopard'.

[3] *ʔʿüʾɾwʔ 'large feline' > **Hamito-Semitic:** Semitic *ʔarʿʸʾay- 'lion' or sim. > Hebrew אַרְיֵה ʔarʿyē, אֲרִי ʔᵃʿrī 'lion', Biblical Aramaic אַרְיֵה ʔarʿyē, pl. ʔarˌyāwāʿtā, Jewish Aramaic אַרְיָא ʔarʿyā, Syriac ʔarʿyā 'lion', as well as Ge'ez ʔarwē 'wild beast' ||| Egyptian rw 'lion' ||| East Chadic: Mubi ʔórúwà 'lion', Migama ʔáɾ̀úm 'lion', Tumak ɜ̀rɜ̀w 'leopard' ¦¦ ?? Central Chadic: Musgu àhìráw id. ¦ Lamang árvárè ¦ Mandara ʔurʊvʷɜ̀rì, Glavda árɜ̀vara, Gava ʔúrvárà, Dghwede àrvírè 'lion' ¦ Kotoko rávani id. || **Altaic**: Turkic *irbiʿʃ or *irbilʗ 'leopard' > Old Turkic irbiš ~ irbič 'leopard', Tuva irbiš id.; Turkic ⊳ Class. Mong. irbis, Halha-Mongolian irwes 'panther, leopard'; Mongolic ⊳ Altay irbis 'leopard' || **Dravidian** *uṙuv- 'tiger' > Tamil uṙuvaḭ, Telugu duvvu, Kolami duv, ḍū, Gondi ḍū, ḍūal 'tiger', ḍuwāl, ḍuwwal 'panther'.

[4] *SiwVŋgE 'leopard' > **Indo-European** *siŋ$\hat{g}^{h}$o- 'leopard' or 'lion' > Armenian inʒ, aŋʒu 'leopard' ¦¦ Old Indian simha-ḥ 'lion' ¦¦ Tocharian A śiśäk, B ṣecake 'lion' || **Hamito-Semitic**: East Cushitic *ʒagum 'leopard' > Tambaro ʒegu'ma, Sidamo dagūn-čo ||| Chadic: Hausa zā́kì, Gwandara ǯák^{y}i ¦¦ Kotoko zə́vəni ¦¦ Mokilko sùwwú, Kwang sèmkì, sémgí id. || **Altaic**: Tungusic *sibi^{r}g^{1}e 'large beast of prey' > Tungir Ewenki siwigə̃ ~ hiwigə̃ 'wolf', Ayan Ewenki siwiyɜ 'bear', Ola Lamut hɜwyɔ̀ ~ hɜwyɜ, Okhotsk Lamut hɜwɜyɜ id., Orochi sī̀wi (name of a mythical dog) || **Dravidian** *ciVVŋki 'leopard' and sim. > Tamil civiṇki 'Indian lynx, hunting leopard', Malayalam civiṇṇi 'hunting leopard', Kannada sivaŋgi 'tiger-wolf, hyena', Telugu civā̃gi, civvā̃gi, civvaŋgi, sivā̃gi, sivaŋhi, sivvaŋgi 'hyena' ◇ In Dravidian there is coalescence of the etymon in question and Nostr. *ĉ^{r}i^{1}bVɣV (or *ĉ^{r}i^{1}bVʕV) 'hyena'

[5] *ʔoŕ^{r}u^{1} 'antelope (male), deer' > **Hamito-Semitic**: Semitic *ʔarway- > Akkadian arwium 'gazelle (male)', Arabic أُرْوِيَّة ʔurwiyyat- (pl. أَرْوَى ʔarwā) 'mountain goat', Ge'ez ጸርዌ ʔarwē 'beast, animal' (merger of two roots) ||| Cushitic: Dahalo ʔā́rōle 'eland' || **Altaic**: Mongolic: Class. Mong. oruŋgu, Halha-Mongolian, Buryat orongo 'a kind of small dark antelope with long flat horns' ||| Tungusic *oron 'reindeer' > Ewenki oron, Lamut orъn, Negidal oyon, Orochi oro, Ude oro~olo, Ulcha oro(n-), Nanay orõ 'domestic reindeer', Manchu oron buɣu id. || **Dravidian** *Ur̀$_{L}$-ay-$_{J}$ 'deer' > Tamil ur̀ay, Tulu uræ, ule 'deer', Parji ur̀up 'spotted deer'.

[6] *maŋ^{r}g^{1}V or *maN$_{L}$i$_{J}$^{r}g^{1}V 'monkey' > **Hamito-Semitic**: East Chadic: Mubi móŋgò 'small black monkey' || **Altaic**: Tungusic *mońo > Manchu monio mońo '(a kind of) yellowish monkey with a short tail', Sibe-Manchu mɔń(u), Northern Manchu mɜńu 'monkey' || **Dravidian** *maŋk- 'monkey' > Malayalam moṇṇa, Kannada maŋga, Koraga maŋgi 'monkey', Tulu maŋge id., 'ape' ◇ The origin of English monkey and of the Romance word *monna (> Spanish, Portuguese mona, -o 'monkey', Italian monna, French mone 'female monkey') remains rather obscure. They may be loanwords of unknown origin. Nothing is known about their possible connection with Nostr. *maŋ^{r}g^{1}V 'monkey'.

[7] ***šüŋU** 'snow' > **Indo-European** *sneiᵹᵘʰ- 'to snow', *snigᵘʰ-, *snoigᵘʰ- n. 'snow' > Old Indian *snēha- > Prakrit siṇeha- 'snow', Shugnani žəniš id., Avestan snaēža- 'to snow' ¦¦ Greek νίφ-α (accus.) 'snow', νείφει 'it snows' ¦¦ Latin nix (gen. nivis) 'snow', nivit 'it is snowing' ¦¦ Middle Irish snecht(a)e 'snow' (with a *t-suffix like in Greek νιφετός 'falling snow, snowstorm'), Irish sneachta, Welsh nyf 'snow', nyfio 'to snow' ¦¦ Old High German, Anglo-Saxon snīwan 'to snow', Old Norse snýr 'it snows', Gothic snaiws, Anglo-Saxon snāw, Old High German snēo, English snow, German Schnee, Danish sne, Swedish snö 'snow' ¦¦ Lithuanian sniẽgas, Latvian snìegs, Prussian snaygis 'snow' ¦ Slavic *sněgъ id. > Old Church Slavonic снѣгъ sněgъ, Russian снег, Polish śnieg, Czech sníh, Croatian sniẽg, Serb снѐг, Bulgarian сняг ¶ The prehistory of the word may be represented as follows: *šüŋU > *šiŋU > *šiᵹU > *Sniᵹu > IE *sneiᵹᵘʰ- (for details of the vowel changes see Dolgopolsky 1995, 17–22) || **Uralic**: Finno-Ugric *šüŋe 'wet snow' > Finnish hyy 'ice, melting snow' ¦ proto-Lappish *sōvē 'snow with ice and water' > Norwegian Lapp suovve 'wet snow' || **Altaic**: Tungusic *süŋü 'hoarfrost, snow' > Ewenki siŋi-ksə id., siŋi-lgən 'snow', Nanay suŋgu 'hoarfrost', Classical Manchu su(ŋ)- 'to become covered with hoarfrost' ||| Turkic *seŋ (or *säŋ) 'ice floe, block of ice' > Qazaq, Nogay seŋ id., Qaraqalpaq seŋ 'ice, ice floe' ('лед, льдина') ||| Mongolic *söŋ > Class. Mong. söŋ, Halha-Mongolian сөнг söŋ, Kalmuck söŋ 'small pieces of ice in a river' ||| Japanese śimo 'hoarfrost, frost' || ? **Hamito-Semitic**: Egyptian šnw.t, šnᶜ 'haily weather'.

[8] ***čaĺ̥U̯ᵹ∇** 'snow' or 'hoar-frost' > **Hamito-Semitic**: Semitic *ˈθalag- 'snow' > Hebrew שֶׁלֶג ˈšɛlɛᵹ, Aramaic תַּלְגָּא talˈlagā, status emphaticus תַּלְגָּא talˈgā, Syriac st. emph. ܬܲܠ̰ܓܳܐ talˈg-ā, Arabic ثَلْج θalǧ-, Akkadian šalgu 'snow' || ? Berber: Kabyle a-salu, pl. i-sula 'couche de neige' || **Uralic**: Finno-Ugric *ᵒčˈʳaˈĺ̥ᵹ̯∇ > proto-Vogul *šaĺ- 'hoar-frost' > Southern Vogul šaĺ, šåĺ, Western and Eastern Vogul šaĺ, Northern Vogul soĺ || **Altaic** *ʦˈʳaˈĺka > Turkic *ʦoĺ 'ice' > Old Turkic toš 'glacier in the mountains', Altay, Tuba, Qumanda toš, Tuva doš, Tofalar d̯ɔ̈š 'ice', Volga Tatar tuš 'water over the ice of rivers\lakes (наледь)', Yakut tohō- 'to break ice in a

river' ||| Tungusic *jalka 'fine snow' > Negidal jalka id., jalka- 'to snow' (of fine snow).

[9] ?? *ǰ̣ʳaˀRʔ∇ 'hoar-frost', (>) 'frozen soil' > **Hamito-Semitic**: Semitic *°√ḍ̣rʔ > Arabic ʔaḍ̣ḍ̣urʔ- 'frozen earth, frozen mud' || **Kartv.** *°čχ|qar- > Tush Georgian čχar-i 'hoarfrost' || **Altaic**: Mongolic *car > Class. Mong. car, Halha, Kalmuck цар 'layer of frost on the surface of snow; hard crust on snow' ||| Turkic: Teleut čarɨm id.

[10] *ḳ̣irˌuˌqa 'ice, hoarfrost; to freeze' > **Hamito-Semitic**: Semitic *ˈḳ̣arˌ∇ˌχ- 'ice' > Biblical Hebrew קְרַח ˈḳ̣ɛraḥ 'ice, frost', Syriac ḳ̣arḥ-ā, Akkadian ḳ̣arɣ-u 'ice', Akkadian √ḳ̣rɣ (inf. ḳ̣arāɣu) 'freeze' ||| ? Berber *√krr > Rif aḳ̣arra 'grêle' ||| ? East Cushitic: Oromo ḳ̣orra 'cold, coldness', ḳ̣orra 'to freeze, make cold', Sidamo ḳ̣orra 'frost, hoarfrost, severe cold', ḳ̣orra 'to be\feel cold, freeze', Darasa ḳ̣ōrra 'frost' ¶¶ The Berber and Egyptian roots may alternatively go back to Nostr. *Ḳ̣arhʔ∇ 'ice, hoarfrost' || **Kartvelian:** Lechkhumuri Georgian ḳ̣ruχ-wa n. 'cold' ('Kälte') || **Indo-European** *k̂erˌəˌ-, *ˈk̂ernos 'ice crust, snow crust, hoarfrost' > Armenian saṙn (gen. saṙin) 'ice' ¦¦ Germanic (< *ˈk̂ernos): Old Norse hjarn 'snow crust', Old High German hornunc 'February' (← *'month of ice\snow-crust') ¦¦ proto-Slavic *sérnъ (gen. sernà) (< *ˈk̂ernos) > Russian Church Slavonic **срѣнъ** srěnъ, Old Russian serenъ, Polish śron ~ śrzon 'hoarfrost', Bulgarian 'серен 'snow that has frozen together', Czech stříň, stříní 'ice on branches of trees', Russian (dial.) сеˈрён, Slovene sr̨ẽn, Russian, Ukrainian 'серен 'frozen hard snow' ¦ Latvian sērns id. (< *ˈk̂ernos); with other derivational suffixes: Lithuanian šer̃kšnas, Latvian sērksnis, sę̃rsna 'hoarfrost' || **Uralic**: [1] Finno-Ugric *°kirʔ∇ > Ob-Ugric *°kīr > proto-Ostyak *kīr 'snow-crust' > Eastern Ostyak kir, Northern Ostyak ker id. ¦¦¦ [2] with a suffix: Finno-Ugric *kirte ~ *kerte 'snow-crust, frozen soil' > Finnish kirsi (obl. cases kirte-) 'frost on the ground, ice-crust', kersi 'thin snow-crust', Estonian kirs 'ice layer' ¦ Highland Cheremis kart 'snow-crust' ¦¦ East. Ostyak kå·rd_əm ~ kårtəm 'thin snow-crust' || **Altaic** *kʻirʔ∇ 'snow, hoarfrost': Turkic *kʻıra-gu 'hoarfrost' > Old Turkic qırāɣū, Chagatay qıraw 'hoarfrost that falls from the sky', Xwarazmi Turkic qıraɣu, Old Qïpchaq qırawū,

Cuman kirov, Turkish kırağu, Türkmen gırav, Azeri gırov, Yakut kırıa, Tuva χırā 'hoarfrost'; another derivative: Turkish kırç 'abundant hoarfrost', Gagauz qırč 'hoarfrost, white frost' ||| ? Mongolic *kira-gu˽n˼ 'hoarfrost' > Middle Mongolian kiraʔu, Class. Mongolian kiragu(n), Halha хярууу, Ordos kirū, Buryat хюрууу, Dongxiang qireu, Kalmuck кирү kirü 'hoarfrost', Mongolic *kira-mag 'fine snow, first snow' > Class. Mongolian kiramag, Halha хярмаг, Buryat хирмаг ~ хярмаг id., Kalmuck kirmăg id., 'newly-fallen snow'.

If the Nostratic ancient homeland is in a subtropical region, we face a problem of choice: was it in Southern Europe or in the Southwestern Asia? There are two words suggesting an answer: *Sah˽i˼b∇ 'saline earth, desert' and *tälwA (or *talwä) 'cold season, rain'.

[11] ***Sah˽i˼b∇*** 'saline earth, desert' > **Dravidian** *ɕavа 'brackish\saline earth' > Tamil cavaṭu 'earth impregnated with soda, alcaline soil, sediment; fuller's earth', Tulu cavuḷь, cavuḷu 'brackish, saline', Telugu caudu'fuller's earth' || **Hamito-Semitic**: Semitic *°šahb- (or *sahb-) > Arabic sahb- 'desert, desert with saline earth' ||| East Cushitic *zib- 'desert' > Saho dib-o, Afar dub-u, Benadir Somali dib-ad, Rendille yip id. || **Altaic**: Turkic *sāy 'stony desert' > Old Turkic sāy id., Chaghatay (15th c.) say 'a river that flows in the winter and is dry in summer' || **Uralic** *śs̄oywa 'clay' [contamination with Nostr. *śabʳʔˀ∇ 'soil, clay'] > Ter Lapp ć̆uj̄vɛ, Kildin Lapp ć̆uu̯yə 'Ton, Lehm' ¦ Permian *śoy 'clay' > Ziryene сёй śoy, Upper Sïsola Ziryene śo̯y, Yazvian ˈśůy, Votyak сюй śuj ||| Samoyedic: Taz Sölqup sö 'earth, soil; clay', Koibal se 'Ton'.

[12] ***tälwA or *talwä*** 'cold season, rain' > **Indo-European** *del- 'rain, dew' > Armenian teł 'heavy rain', tełam, -em, -um 'to cause to rain heavily, open the windows of heaven' ¦¦ Middle Irish delt 'dew', Breton delt 'moist' || **Uralic** *tälwä 'winter' > Finnish talvi, Estonian talv ¦ proto-Lappish *tālvē > Norwegian Lapp dalˈve ¦ Erzya-Mordvin теле ťeĺe, Moksha-Mordvin тяла ťalə ¦ Highland Cheremis tel, Eastern Cheremis telə ¦ Ziryene tэv, Yazvian tȯl 'winter' ¦¦ Ob-Ugric *tĒl(əɣ) 'winter' > Southern Vogul tāl 'winter', Eastern Vogul tōl id., tēli 'in

winter'; proto-Ostyak *tĕləɣ 'winter' > Vakh Ostyak tĕləɣ ¦ Hungarian tél id. || ? **Altaic**: Turkic *tolu 'hail' > Turkish dolu, etc.

These two Nostr. words suggest Southwestern Asia as a homeland. Indeed, saline earth is very typical in Southwestern Asia, but not in Southern Europe. The equation 'winter' = 'rain' is more natural in the Near East (where rain is in winter only, and winter is characterized by rain) than in Southern Europe.

The Nostr. vocabulary shows that the speakers of the Nostr. parent language were by no means a maritime people. We find no words for boats or navigating. There is even no real word for the sea. Of course, there is a word *yam∇, which apparently means 'sea' in Semitic and some Samoyedic languages. But what kind of a 'sea' is this? The Hebrew word יָם yām is usually translated as 'sea', but is applied not only to the Mediterranean, but also to the 'sea' of Galilee and to the Dead Sea (Hebrew yam ham'mɛlaḥ 'Salty Sea'), which from the modern point of view are lakes. In the Samoyedic languages the word denoted a large river (the Ob), and only in the languages and dialects of those who reached the Arctic ocean (namely Nganasan and Tundra Nenets) the word denotes the sea. Those who in the remote past were not maritime people did not distinguish the sea from other large water bodies.

[13] ***yam∇** 'water body' ('sea, lake' > 'pond'), 'water' > **Hamito-Semitic**: Semitic *yamm- 'sea' (actually 'large water-body') > Hebrew יָם yām (pl. יַמִּים yam'm-īm) 'sea', Phoenician, Ugaritic ym, Aramaic, Syriac yam'm-ā, Arabic yamm- 'sea'; Semitic > Egyptian (from the 18th Dynasty) ym 'sea' ||| ?? Berber *-ʔam- 'water' (with the masc. article *ʔa- and the pl. ending *-ān: *ʔa-ʔam-ān > *ām-an pl. 'water') > Twareg ām-an, Kabyle aman, etc. ||| Chadic *ˌHV̩ˌyV̩m- 'water' > Tera ʔyim, Ga'anda yèma, Chibak yìmi, Higi yiemi, etc. || **Uralic**: Samoyedic *yäm 'large water body (sea, large river)' > Nganasan 'дзьяма 'ʒama 'sea', Tundra Nenets jamʔ̃ 'sea, large river', Forest Nenets y̆ĕå:m 'large river'.

The words for 'sea' in the descendant languages go back to Nostr. words for 'water body'. The IE word *mori 'sea' is from Nostr. *moRE 'water body'. In Egyptian the same root means 'pool', and the speakers of Megrelian (a Kartvelian language, very near to the Black Sea) use this word for 'lake'.

[14] ***moRE** 'water body' > **Indo-Eur.** *mor-, *mori / *m̥ri 'sea' > Latin mare 'sea' ¦¦ Celtic *mori- 'sea' > Old Irish muir (gen. mora), Welsh

mor ¦¦ Germanic: Gothic marei, Old High German marī, Old Norse mar-r (gen, mar-ar) 'sea, lake' ¦¦ Prussian mary, Latvian mare 'the Curonian Lagoon (Kurisches Haff)', Lithuanian pl. mãrės (gen. mãrios) id., 'sea'; Baltic ↛ Finnish, Estonian meri 'sea' ¦ Slavic *moŕe 'sea' > Old Church Slavonic **морѣ** morje, Bulgarian мо'ре, Serbo-Croatian mȍre, Czech moře, Slovak more, Polish morze, Russian 'море || **Ham.-Sem.**: Egyptian mr 'pool, channel', Demotic Egyptian mr 'haven, land on the seashore', mry.t 'haven' ||| Central Chadic: Nzangi mirɩn 'river' || **Kartv.** *°mo|a|er- > Zan *mo|ar-eɣ > Megrelian mere 'lake' || **Altaic**: Mongolic *mören 'large river, lake, sea' > Middle Mongolian mören 'large river, stream of water', gen. mörenü 'of the sea, of a large river', Class. Mong. mören, Halha мөрөн 'large river or lake', Kalmuck möran 'river (falling into a sea)', Ordos mörön, Monguor murōn, Dagur můr(ů) 'river'.

Ancient speakers of the Nostratic parent language did not know geography and had no maps, they were not a maritime people, therefore they did not distinguish between the sea and other relatively large water bodies. This is also an argument for their localization in Southwestern Asia rather than in peninsular Southern Europe (where an intimate acquaintance with the sea was inevitable).

All this favours the hypothesis of Southwestern Asia (rather than Southern Europe) as the original Nostratic territory.

3.2. *When?*

By saying 'When?' we do not mean astronomical time (millennia), but rather cultural time (the Neolithic, Mesolithic or Palaeolithic epochs).

3.2.1. Neolithic? Agriculture, husbandry, pottery?

In contrast to the Proto-Indo-European vocabulary, very rich in terms of agriculture, husbandry and pottery (hence pointing to a Neolithic dating of the Indo-European parent language), the Nostratic vocabulary (as reflected in the extant two thousand etymological entries) has no words that can be unequivocally connected with Neolithic culture.

It has no words for sowing or ploughing, but has words for harvesting (in defiance of the famous maxim).

[15] *qaRpḭ̯∇ 'to harvest' (‘cereal') > **Hamito-Semitic**: Semitic *√χrp 'to pluck, harvest' > Arabic خرف √χrf 'to pluck and gather (fruit)'; Semitic *'χurup-, *χarp- 'autumn and winter' (← *'harvest-time') > Old South Arabian χrf 'autumn, autumn crops', Akkadian χarpū 'early autumn', Biblical Hebrew חֹרֶף ḥorap 'winter', Arabic خُرُف χuruf- 'tempus quo ad autumnum exeunt', χarīf- 'autumn' || **Indo-European** *xa|orP- > Hittite harpas, harpiyas 'feast of harvest' ('Erntefeste') || **Altaic**: Turkic *arpa 'barley' > Old Turkic arpa, Turkish arpa, etc. ||| Mongolic *arbay 'barley' > Middle Mongolian, Classical Mong. arbay, Halha arvay id. ||| Manchu arfa 'oats, barley'.

[16] *ʒükʊ̈∇ or *ʒukE 'edible cereals, harvest (of wild plants?)' > **Hamito-Semitic**: Semitic *°√zkw > Arabic √zkw 'to grow' (of a plant) ||| ? Egyptian sḳꜣ 'to plough, cultivate a field', sḳꜣ (noun) 'harvest of a field' || **Uralic**: Finno-Ugric *sükśʊ̈∇ 'autumn' > Finnish syksy, syys id., Estonian sügis, sügise- ¦ proto-Lappish *ćꙗkćꙗ id. > Norwegian Lapp čâkʲčâ ¦ Erzya-Mordvin сёксь śokś, Moksha-Mordvin сёксе śokśə̈, 'autumn' ¦ Lowland Cheremis 'шыже šъže, Highland Cheremis шыжы šəžə id.¦ Votyak сизьыл siźɨl id. ¦¦ Ob-Ugric *θŭʊ̈as id. > Southern Vogul tüks, Vakh Ostyak sŏ̈γas id. ¦ Hungarian őszid.

Nostratic had words for cereals (*gaL∇, *χänṭ∇, etc):

[17] *gaL∇ 'cereals' > **Hamito-Semitic**: Semitic: Arabic γall-at- 'cereals' || **Kartvelian**: Georgian γalva 'zu mähendes reifes Korn', possibly also γala 'reicher Ertrag des Feldes' || **Indo-European** *xel꜀∇˩K- > Hittite halki- 'grain, corn, grain-crop' ||| Greek ἄλις 'spelt' ⇢ Latin (h)alica id.

[18] *χänṭ∇ 'kernel, grain' > **Hamito-Semitic**: Semitic *ḥinṭ-at- (~ *ḥunṭ-at-?) 'wheat' > Hebrew ḥiṭ'ṭā, Ugaritic ḥṭt, Old Aramaic ḥṭḥ, Imperial Aramaic ḥnṭʾ ~ ḥṭḥ, Jewish Aramaic ḥinṭə'ṯā ~ ḥiṭṭə'ṯā, Syriac ḥeṭṭaṯā, Arabic حِنْطَة ḥinṭat-, Akkadian uṭṭatu 'wheat' ||| Cushitic: Somali háḍùḍ 'corn, millet', Iraqw, Gorowa ʕayitiʔi (pl. ʕayitoʔo) 'maize' || **Indo-European** *x̄et(e)n- (metathesis from Nostr. *χänṭ∇) >

Hittite hattar '(a kind of) cereal' ||| Narrow Indo-European *et(e)n- 'kernel, grain' > Middle Irish eitne 'kernel', Scottish Gaelic eite 'unhusked ear of corn', eitean 'kernel, grain' ¦¦ Greek ἔτνος 'a thick soup of pulse, pea-soup' || **Dravidian** *aṅṭi 'kernel' > Malayalam aṇṭi 'kernel, stone of mango, etc., nut', Tamil aṇṭi-kkoṭṭai 'cashew-nut', Kodagu ma·ŋge a·ṅḍi 'mango stone'.

Unfortunately, the words for cereals do not help us to understand if those cereals were wild or domesticated. Therefore our conclusion about the lack of agriculture is based on a negative argument only: no words for specifically agricultural activities (sowing, ploughing, harrowing, etc.).

We face a similar difficulty in trying to find out whether the speakers of Nostratic were acquainted with husbandry. The words for bovines, sheep, goat and swine are not helpful because they might have denoted both wild and domesticated animals. But there is a more sophisticated way of solving the problem: the criterion of milk as food. Milk as food exists only in societies with husbandry. But in Nostratic we know of no word for milk as food or for milking a female animal. The words of the descendant languages for 'milk' and 'milking' go back to words with a different meaning. For instance, the Indo-European verb *melg̑- 'to milk' (whence English milk) goes back to Nostr. *mälge 'breast, female breast'. The Hamito-Semitic root for 'milk, to milk' (Hebrew ħa'laḇ, Arabic ħalab- 'milk', the South Cushitic word for 'milk') go back to Nostr. *ħalbV 'white'. Finnish maito 'milk' is traced back to the Nostr. word for 'tasty beverage'.

[19] ***mälge** 'breast, female breast' > **Indo-Eur.** *melg̑- 'to milk' > Greek ἀμέλγω 'I milk' ¦¦ Albanian mjel, miel id. ¦¦ Latin mulgē-re 'to milk' ¦¦ Middle Irish bligim 'I milk', perfect do-om-malg ¦¦ Old High German melchan, German melken, Anglo-Saxon melcan 'to milk'; noun: Gothic miluks, Old North mjǫlk, Old High German miluh > German Milch, Anglo-Saxon meolc, mioluc > English milk; Germanic ↛ Slavic *melko 'milk' > Old Church Slavonic mlěko, Polish mleko, Russian моло'ко 'milk' ¦¦ Lithuanian mélžu /mìlžti 'to milk' ¦ Slavic: Russian Church Slavonic mьlzu /mlěšti 'to milk'; Slavic *melzivo 'colostrum' > Russian мо'лозиво, Slovak mlězivo, etc. ¦¦ Tocharian: A mālklune 'milking' (nomen actionis), A malke, B malk-ṿer 'milk' || **Ham.-Sem.**: Semitic *√mlg > Arabic مَلَجَ √mlǧ 'to suck' ||| Egyptian mnȝ 'female

breast, breast' ||| Cushitic: Somali māl- 'to milk' || **Uralic**: Finno-Ugric *mälʁe 'breast' > Finnish mälvi, Estonian mälv 'breast of a bird\fowl' ¦ Norwegian Lappish mielᵑgâ 'breast\chest of an animal' ¦ Moksha-Mordvin mäɬkä 'breast' ¦ Highland Cheremis mel id. ¦ Votyak mɜl id. ¦¦ Ob-Ugric *mɛ̄ɣəl 'breast' > proto-Vogul *mā̆ʁəl > Konda Vogul mɔ̈ʁl, måʁl; Vakh Ostyak mö̆ɣəl, Teryugan Ostyak mā̆ɣʷəɬ id. ¦ Hungarian mell 'chest, breast, bosom' ||| Tundra Yukagir meɬut 'breast'.

[20] *ħalbV (or *χalbV) 'white' > **Ham.–Sem.**: Sem. *ħaˈlab- 'milk' > Biblical Hebrew חָלָב ḥāˈlāḇ id., Middle Hebrew חָלָב ḥāˈlāḇ id., 'white (of an egg)', Punic, Ugaritic, Official Aramaic ħlb, Aramaic, Syriac ħal(ə)ˈḇ-ā, Arabic حَلَب ħalab- 'milk', Ge'ez ħalab 'sour milk'; derivatives: Arabic ħalīb- 'milk', Ge'ez ħalīb, Tigre, Tigray ħalib 'milk, curds', Sem. *√ħlb 'to milk' > Middle Hebrew, Aram., Syriac, Arabic √ħlb id.; West Sem. ⇸ New Assyrian Akkadian χilpu 'milk' ||| South Cush.: Iraqw ʔîlwa, ʔilwā~ʔulwā, Burunge, Alagwa ilba, Gorowa ulûwa, Asa liba 'milk' ¦¦ East Cush.: Somali ħalab-lä 'Melchsechter' (with the component lä ʿhaving') ¶¶ The Sem. words *ħaˈlab- and *ħaˈlīb- have a morphological structure typical of adjectives (the patterns *CaˈCaC- and *CaˈCīC-). This fact suggests an original meaning of adjective (most probably 'white') || **Indo-Eur.** *ʿhˀa|elbʰo- 'white' > Narrow Indo-Eur. *albʰo- id. > Latin albus, Umbrian alf- id. ¦¦ Gaulish albo- id. ¦¦ Greek [Hesychius] acc. pl. ἀλφούς id., ἀλφός 'whiteness, white leprosy' ¦¦ Germanic *alβ-it, *alβ-ut- 'swan' > Old High German albiz, elbiz, Anglo-Saxon ælbitu, ielfetu, Old Norse elptr, ǫlpt ¦¦ Slavic *ǫ́lbǫdь ~ *ě́lbędь 'swan' > Church Slavonic лебедь lebedь, Bulgarian лебед, Serbo-Croatian lȁbū̏d, Russian ˈлебедь, (dial.) ˈлебядь, Polish łabędź, Czech labuť ||| ? Hittite alpas 'cloud' || **Drav.** *all- 'clear' (of liquids) > Kurukh all-nā 'to become clear' (of liquids left undisturbed), Malto ále id. ◇ If Hittite alpas belongs here, the reconstruction is *ħalbV, otherwise it is *ħ|χalbV.

[21] *mayǯV 'tasty beverage' > **Uralic**: Finno-Ugric *mayʒ̑V 'sap of trees' > Finnish maito 'milk', Finnish (dial.) maiṯo 'birch sap', Estonian (dial.) maiṯ 'cream (Sahne)' ¦ Votyak (dial.) mɜ́ 'tree honey, tree sap' ||

Altaic: Turkic *bal 'honey' > Old Turkic bal, etc. || **Kartvelian** *mžV > Laz mža 'milk, buttermilk' || **Hamito-Semitic:** East Cushitic: Sidamo mal(ʔ)- 'sweet', Saho, Eastern Afar malāb, Somali malab, Hadiya marabō, Sidamo malawō 'honey' || **Indo-European** *mel-i-(t) / *mel-n- 'honey' > Armenian meɫr ¦¦ Greek μέλι (gen. μέλιτ-ος) ¦¦ Albanian mjal, mjaltë (< melit-) ¦¦ Latin mel, gen. mell-is (< *mel-n-) ¦¦ Old Irish mil (< *meli), gen. mela ¦¦ Gothic miliþ id. ||| Hittite milit- 'honey'.

Through the looking-glass of the vocabulary we can see that the speakers of the Nostratic parent language were hunters and gatherers without agriculture and husbandry.

Did they know pottery? There are many Nostratic words that in the descendant languages are names of vessels. But what is conspicuous is that practically all of them denote baskets too. When used as verbs, they mean 'to plait, wattle, wicker'. In addition, many of them are used to denote walls and fences (< 'wickerwork'). These words reflect the epoch of plaiting vessels, which only later developed into earthenware.

[22] ***ḳadV** 'to wicker, wattle' ('wall', 'building') > **Kartvelian** *ḳed-/*ḳd- 'to build' > Laz ḳid-, ḳod- 'to build', Georgian ḳed- 'corner-stone', Megrelian ḳid- 'to partition off with a wall'; Kartv. *ḳedǯ/*ḳdel- 'wall' > Georgian ḳed-el-, Laz ḳida, ḳoda, Megrelian ḳida(la), ḳɜda(la) ~ ḳɜdela 'wall', Lashkhi Svan čʼwed, čʼwäd (pl. čʼwädw-är) id. || **Ham.-Sem.**: Semitic [1] (with a deglottalized *k-) *kadd- 'jar, vessel for liquid' > Hebrew כַּד kaḏ (pl. כַּדִּים kaḏ'd-īm), Ugaritic kaddu 'jar', Phoenician kd [*kad(d)] 'pitcher, jar' (↛ Greek κάδ(δ)ος 'jar, vessel for water\wine' ↛ Latin cădus 'jar' and probably Megrelian ḳoṭo 'pot'), Jewish Aramaic כַּדָּא kaḏ'd-ā 'jar', כַּדְנָא kaḏ'n-ā 'jug', Syriac kaddā'n-ā 'small narrow-necked jug', Arabic kadd- 'mortar'; [2] *ḳVdVr- 'earthen pot' > Middle Hebrew קָאַדֵּר ḳā'ḏēr, קְדֵרָה ḳəḏē'rā, Jewish Aramaic קְדֵרָא ḳəḏē'r-ā ~ קִדְרָא ḳiḏ'r-ā, Syriac ܩܶܕܪܳܐ ḳeḏ'r-ā '(earthen) pot', Arabic qidr- 'chaudron; marmit en cuivre', qadar-at- 'petit flacon', Mehri ḳādər 'pot' ||| Egyptian ḳd 'to make earthenware, to build, to shape, to create', ḳd 'pot' ||| Omotic: Zayse ḳeče 'Zaun des Geheges', Shinasha kaçça id., 'Gehege für Rindvieh' ||| West Chadic: Bole-Tangale: Bole kuḍa 'pot', Kirfi kʷàtì 'cooking pot' ¦¦ East Chadic: Dangla kɔ́ḍà 'a kind of small jar' || **Indo-Eur.** *kat- 'wickerwork, wattle-fence' >

Church Slavonic котьсь 'cage', Macedonian Slavic котес, Bulgarian 'коСе 'fishweir', Serbo-Croatian ко̀тас id., 'partition in a shed', Old Polish kociec 'enclosure for livestock\fowl', Russian (dial.) ко'тец 'fish-trap (made of cane\brushwood), кот'цы 'fishweir, fishing net', Ukrainian ко'тець 'round fishweir'; Slavic *котъ, *кот-ьсь 'small building' (> Old Czech kot, ко́т 'stall, shop [in the market]', Church Slavonic котьсь 'small room', etc.) represents a contamination of the root in question and Nostr. *Ḳot|ṭa 'fence, wall, hut, house' ¦¦ Anglo-Saxon heden 'cooking vessels' ¦¦ Latin catīnus 'dip dish\bowl' ¶ IE *-t- instead of the phonetically regular *-d^h- is due to the incompatibility law ruling out combinations of tenues and mediae aspiratae; in some cases contamination with *Ḳot|ṭa 'mud-hut, house' may have played a role as well || ? **Altaic**: Turkic *kat- 'to weave, plait, twist (wool into thread)' (shift of fortis < **k'at-?) > Tofalar qat'- 'to weave, plait', Tuva qat- 'to add, weave, twist' || **Dravidian** [1] *kaṯṯ-, *kaṯ- 'to tie, build' > Tamil, Telugu kaṭṭu, Malayalam keṭṭuka, Kota, Kolami, Gadba kaṯ-, Toda koṯ-, Kodagu kəṯṯ-, Tulu kaṭṭuni, Naikri, Parji kaṯṯ-, Chanda Naiki kaṯ-/kaṯṯ- id., Kannada kaṭṭu 'to bind, tie, dam', Gondi kaṯṯā 'a dam in the river for catching fish', Konda kaṯa 'bundle (of hay)', Kui kāṯ- 'to fix, fasten', Malto gaṯa 'rope, cord'; [2] (derived from the prec.?) *kaṯṯī or *kattī 'mat, mat-wall' > Gondi kaṯṯī 'palmleaf mat', katti(:) ♂ ketti 'mat', Konda kati 'wall', Kuwi katti 'mat-wall' ♂ kati 'wall'.

[23] *ḳoʔć|c∇ 'basket' > **Ham.-Sem.**: Semitic *'kaʔas- 'vessel' > Bibl. Hebrew כּוֹס kōs, Samaritan Hebrew kuwwåš, Ugaritic, Phoenician, Official Aramaic, Hatra ks, Phoenician ḳs (ḳ < *k...ʔ), Jewish Aramaic כָּסָא kā'sā, Syriac ܟܘܣ kās / 'ܟܘܣ kā's-ā, Mandaic kasa 'drinking-bowl, cup', Arabic كَأْس kaʔs- '[wine-]cup', Akkadian kāsu 'drinking-bowl' ||| Egyptian kc 'jug of metal', Late Egyptian kȝ 'vessel of silver' ||| Berber *k'ū'ss- 'pot, drinking vessel' > Twareg, Ghat akus (pl. ikassən), Ghadamsi tɯkəs (pl. təkəssən) 'pot, drinking vessel' ||| Central Cushitic: Khamir kŭskŭsā (pl. kŭskūs) 'Wasserkrug'; Agaw ⊰ Ethiosemitic: Ge'ez kʷəskʷəs 'pitcher, pot', Tigray kʷəskʷəsti 'phial of glass or metal', Amharic kʷəskʷəst 'water jug' || **Kartvelian**: [1] Georgian ḳvaṭia 'small

earthen pot'; [2] Kartvelian *ḳec- 'earthen vessel' > Georgian ḳeci, Megrelian ḳici & ḳeci 'tönerne Backpfannen', Laz ḳic- 'pan of stone', Svan ḳec 'grand pot (creusé dans la terre)' || **Indo-European** *kʷas-yo-, *kʷas-lo- 'wicker basket, wickerwork', *kʷēsyā 'vessel': [1] *kʷas-yo-, *kʷas-lo- 'wicker basket' > Latin quālum (quallus) id. (< *kʷaslom, as can be seen from the deminutive quāsillus, -um) ¦¦ Slavic *košь (<*kʷasyos) 'basket' > Old Church Slavonic, Old Russian **кошь** košь, Bulgarian, Russian (dial.) кош, Serbo-Croatian kȍš, Slovene kòš, Czech koš, Slovak kôš, Polish kosz, Ukrainian кіш 'basket', proto-Slavic *košelь, *košela, *košelь 'wickerwork' > Low Lusatian kóšela 'wattle-fence', Polish koszela, Old Russian košelь 'wicker basket', Russian ко'шель id., 'small sack' |||| [2] IE *kʷēsiā 'vessel' > proto-Slavic *čaša 'cup' > Old Church Slavonic, Old Russian čaša, Russian 'чаша 'cup, bowl', Bulgarian 'чаша 'a glass', Serbo-Croatian čȁša 'bowl', Slovene čáša 'cup, a glass', Polish czasza, Old Czech čieše, Czech číše 'bowl' ¦ Prussian kiosi 'Becher, Krug' ¦¦ Old Indian 'caṣakaḥ 'drinking-cup' || **Uralic:** Finno-Ugric *koća 'basket (made of birch bark), vessel' > Finnish (dial.) kosio, kalakosio 'großer Fischkorb aus Birkenrinde' (kala 'fish'), Aunis Karelian koʒa, kozʒa 'kleiner Rindenkorb mit Henkel aus Birkenrinde' ¦ Norwegian Lapp guöššе 'Rindenkorb', Kola Lapp kǐ°šš̆e ~ kūšš̆ ~ kŭošš̆ 'Tragekorb aus Birkenrinde' ¦ Moksha-Mordvin kuću, koću 'spoon' ¦¦ Ob-Ugric *kŏć- > Northern and Eastern Vogul sān-χos', Konda Vogul sānχŏs 'small basket of birch bark' (sān 'a vessel of birch bark'); Teryugan Ostyak kŏťi, kŏťək 'Trinkgefäß aus Birkenrinde', Vasyugan Ostyak kŏćək 'Rindenschachtel von der Form einer Schöpfkelle, die in die Wiege gestellt wird' || **Altaic:** Tungusic *xaʧu-xan 'kettle, basket' > Orochi xačuan, Ulcha χačoa(n-), Orok χaʧuɣa(n-), Nanay χačoχã 'kettle', Kur-Urmi Nanay χačoχoã ~ χačã id., 'basket of birch bark', Classical Manchu ɣacuɣan mucen 'three-legged kettle' || **Dravidian** *kuo̲c-a- (+ suffix) 'potter' > Tamil kuyam (/kucam- as the first member of compound words) 'potter caste', kuyavaṉ ~ kucavaṉ 'potter', Malayalam kuyavan ~ kuśavan id., Tamil f. kuyatti ~ kucatti, Malayalam f. kuyatti 'potter (woman)', Tamil kō 'potter', Kannada kōva, kuvara, Tulu kisave id.

[24] *p|pat^{r}a^{1} 'basket, box' > **Hamito-Semitic**: Semitic *°√ptn (?*pa'tan-) > Akkadian pitnu 'box' || **Indo-European** *pod- > Narrow IE *pod- 'box, vessel, pot' > ? Old Indian palla 'container for corn' ¦¦ Old High German vazz 'box, container', Old Saxon, Old Norse fat 'vessel', Anglo-Saxon fæt 'vessel, cup, pot' ¦¦ Lithuanian púodas, Latvian pôds 'pot' ||| Hittite pattar/n-, paddur 'basket', Lycian πατάρα 'basket, box' || **Uralic**: Finno-Ugric *pata 'cauldron, pot' > Finnish pata (gen. padan), Estonian pada 'kettle, cooking-pot' ¦ Norw. Lapp batte/-d- 'pot, cauldron' ¦ Highland Cheremis pat, East. Cheremis pat, pot 'pot' ¦¦ Ob-Ugric *pūt 'cauldron' > Vogul pōt, pūt, put, Ostyak: put, püt, pũt ¦ Hungarian fazék 'cooking-pot' || **Dravidian** *patal∇ 'pot' > Tamil patalai 'large-mouthed pot', Toda paθş 'large, broad-mouthed clay pot', Gonda, Malto patli 'cooking-pot'.

As we can see, according to the lexical data, the speakers of the Nostratic languages had no agriculture, no husbandry, no pottery. Hence, they did not belong to the Neolithic epoch.

3.2.1. Mesolithic? Bow, arrows, fishing net?

Shall we refer the Nostratic parent language to the Mesolithic or a still earlier epoch? It must be confessed that I do not know the answer. But let us try to look for information in the language.

From popular literature on archæology (e.g. *Encyclopædia Britannica* XV [1971], 202) I have understood that *bow* and *arrows* are a Mesolithic achievement. They say also that in Mesolithic times the *fishing net* was invented. I do not know if this is true. If not, I shall appreciate correction. In any case, we may try to apply the criteria of bow, arrows and fishing net and see whether the Nostratic language existed after or before the invention of these artefacts.

In Nostratic there are three words that mean 'bow' in descendant languages. But in analyzing them we find that two of them (*ʕ|ɣaŕḴ^{r}u^{1} and *ɣaŋ$_{l}$ɣ$_{l}$∇) have also the meaning of 'sinew'. The semantic prehistory is 'sinew' > 'string' > 'bow-string' > 'shooting bow'. In the third word (*ɬoŋḴa) the meaning 'shooting bow' goes back to the verbal idea of 'bending' (just as in the English word bow).

[25] *ʕ|ɣaŕḴˠu˺ 'sinew' > **Ham.-Sem.**: Sem.: Arabic ʕirq- 'root, sinew' || **Indo-European** *не|arku- > *arku- 'bow; net' > Latin arcus id. ¦¦ Germanic *arhʷō > Gothic arƕazna (a derived word), Old Norse qr (gen. qrvar), Anglo-Saxon earh 'arrow', English arrow ¦¦ Greek ἄρκυς, -υος 'net' || **Altaic**: Turkic *arka- > Osman arqa- 'an den Sattelriemen festbinden', Chaghatay arqa- 'den Faden einschließen', Tuva arɣ+- 'to knit, plait, weave', Khakas arɣa- 'to embroider in satin-stitch'; Turkic *arkān 'lasso, thick rope' > Chaghatay, Karaite arqan, Türkmen arqān 'lasso, thick rope', Qarachay-Balqar, Volga Tatar arqan, Uzbek arqɑn, Turkish argan 'thick rope, cable', Qïrghïz, Altay arqan 'rope made of hair', Crimea Tatar, Karaite, Bashqurt arqan 'thick rope, cable', Qazaq arqan 'thick rope, rope of horse hair'; Turkic ↛ Russian ар'кан 'lasso' ¶ Nostr. *ŕ > Turkic *r in the preconsonantic position (Helimski's law) ||| Mongolic: Class. Mong. argamʒi, Halha-Mong. аргамж, Buryat аргамжа, Kalmuck арһмж 'rope, tether', Class. Oirat arɣamʒi 'rope, line, halter, hawser, bridle', Class. Mong. argamʒi-, Halha аргамжи-(х) 'to tie, fasten with a rope', Class. Oirat arɣala- 'to fasten, tether'; Mongolian ↛ Tofalar argamʒ́i, Tuva аргамчы 'lasso, leather rope', Khakas arɣamǯ+, Altay армакчы 'lasso, rope', Qïrghïz аргамжы 'rope (made of hair)' || **Drav.** *eṙ▽t- > Kurukh eṙetʰ 'long-bow', Malto eṙtu 'a bow', eṙtyo 'archer'.

[26] *yaŋ₁ɥ₁▽ 'sinew, tendon', 'bow (weapon)' > **Ham.-Sem.**: Egyptian ỉwn.t 'a kind of bow (weapon)' || **Uralic**: there are two derived words: **1.** *yäntä 'sinew, tendon' > Finnish jänne (gen. jänteen) 'tendon, sinew, cord' ¦ Skolt Lapp (Notozero) yė̈ädd_ă_-pes'să_ 'loaded gun' (pes'să_ is 'gun') ¦ Highland Cheremis уəбäн, Eastern Cheremis уъбəŋ 'bow-string', Lowland Cheremis йыдан уə'бəл 'шерстобойная струна' ¦¦ Ob-Ugric *уE:нтəɤ 'bow-string' > Vogul *уā̆нтəɤ > Konda Vogul уантəŋ ≙ уɔ̄нтəŋ, Sosva Vogul уāнтew; proto-Ostyak *уŏнтəɣ > Vakh Ostyak уŏнтəɣ, etc. ¦ Old Hungarian ideg 'sinew, bow-string', Hungarian ideg 'nerve' ||| Samoyedic *yentъ 'bow-string' > Tundra Nenets ен, Obdorsk dial. yēn, Forest Nenets yien, Nganasan yenti, Somatu Enets yēddi, Taz Sölqup čiˈnti, Tïm Sölqup ɕɜ̆nˑd, Kamassian nenɜ̆ id. |||| **2.** *yoŋse ~ *yoŋkse 'bow (weapon)' > Finnish jousi, joutsi 'bow' ¦ proto-Lapp *yōksɜ 'bow' > Southern Lapp juokse,

Lule-Lapp juoksa, Kola (Kildin) Lapp jūk̆:s ¦ proto-Mordvin *yoŋgaks 'bow' > Erzya & Moksha Mordvin yoŋks id., (dial.) yons 'ручная шерсточесалка, лучок' ¦ proto-Cheremis yoŋəž 'bow (weapon)' > Highland Cheremis yaŋɤež, Eastern Cheremis yoŋež ≙ yoŋŭž ¦¦ Ob-Ugric *yōɤəθ 'bow' > proto-Vogul *yă̄ɤət > Pelïmka Vogul yäɤt, Low Lozva Vogul yeɤt; proto-Ostyak *yoɣəɬ > Vakh Ostyak yoɣəl id., etc. ||| Samoyedic *ɨntъ 'bow (weapon)' > Tundra & Forest Nenets ŋɨnˑ, Nganasan d́intə, En eddo id., Taz Sölqup ɨntɨ id., üntɨ 'arc', qōn üntɨ 'rainbow', Chaya Sölqup yŋʒe 'bow', Kamassian īnə, ǰīnə id. || **Я**: Turkic *jāń 'bow' (> *jāy ~ *jā) > Bashqurt jan, Shor nan, Old Turkic jā, Türkmen jāy, Turkish yay, Azeri, Gagauz, Karaite, Nogay jay, Uzbek joy, Qazaq žay, Qïrghïz šā, Altay jā, Yakut sā id., Chuvash śu in uk-śu 'шерстобитный лук' ◇ Ural. *-tä and *-ˌkˌse probably go back to suffixes of derivation. The vowel *ä in the first syllable of Ural. *yänte is due to assimilation (vowel harmony). The labialization of the first vowel in *yoŋ(k)se is obscure.

[27] ***ɮoŋḴa** 'to bend' > **Hamito-Semitic**: Chadic: West Chadic: Hausa lánḳ wà-sā́ v. tr. 'bend' ||| Egyptian rwʒ 'bow-string; Sehne, Flechse des Körpers; Sandalenriemen, Band am Türverschluß' || **Indo-European**: NalE *lenk- 'to bend', *lonko-s 'bow' > Baltic: (*lenk- >) Lithuanian lenkiù (inf. leñkti) 'to bend, crook, curve; bow'; (*lonko-s >) Lithuanian lankas 'shaft-bow; hoop', Latvian lùoks 'Krummholz, Radfelge', Prussian lonki 'Steg'; Lithuanian linkiù (inf. linkė́ti) 'sich neigen zu, wünschen', Latvian lìkt v. intr. 'bend', liks 'crooked'; Prussian lunkis 'corner' ¦ (IE *lenk- >) Slavic *lęk- 'to bend' > Church Slavonic ѧѧкѫ lęk-ǫ / ѧѧшн lęšti 'to bend', Russian (dial.) ˈлякий 'crooked, curve'; (IE *lonko-s >) Slavic *lǫkъ 'bow' > Old Church Slavonic ѧѧкъ lǫkъ, Russian лук, etc. ¦¦ Germanic *laŋha- > Anglo-Saxon *lōha|e [pl. lō(a)n 'in sceaft-lō(a)n 'shaft-straps (to help in throwing spear)'; scéaft means 'shaft of spear\arrow'], Old Norse lengja 'strap (Riemen, Streifen)', Danish længe 'Seilstrippe' || **Uralic** *ɮˈäˈnka- (~ *ɮUŋka-) 'dull arrow' > Pelïmka Vogul lаχ (pl. laŋkət) id.; Teryugan Ostyak ɬă̆ŋk, Demyanka Ostyak lĕŋk id. ||| Samoyedic: Tundra Nenets локы ≙ лукы 'dull arrow (Klumppfeil)', Forest Nenets ɬuʰkˑɬ̄ 'arrow', Bay Enets loku 'round-pointed arrow, Klumppfeil'

||| Tundra & Kolïma Yukagir łokił ‘arrow’ || **A**: Tungusic *lu̯ŋkE- ‘to bow’ > Ewenki luŋkin- ‘to bow the head’, Lamut nôŋkə- id., ‘to bow down’.

It is clear that ‘bow’ is not the most ancient meaning of these roots. The problems is only *when* these semantic changes (‘sinew’ > ‘bow, to bend’ > ‘a shooting bow’) took place. If these semantic changes occured still in proto-Nostratic, then that language (at least, Late proto-Nostratic) existed during the appearance of shooting bows. But if the changes belong to the separate history of the daughter languages (which cannot be ruled out), the Nostratic parent language existed before the invention of shooting bows. In other words, linguistic palaeontology fails to give us a key for chronology.

A similar story is with words for ‘arrow’. The Nostr. word *ńoɣ|ʕlE denotes arrows in Uralic and Altaic (Tungusic). But it also has the meaning of ‘sinew’, so that we may reconstruct the semantic history like that: ‘sinew’ > ‘bow-string’ > ‘shooting bow’ > ‘arrow’. The Nostratic word *p|p̣ešqE (or *p|p̣eqšE) denotes arrows in Chadic and Finno-Ugric, but in Semitic it has the meaning of ‘spear’, so that the underlying semantic change is ‘spear’ > ‘arrow’. Here again we face the problem of chronologizing the changes. We do not know if the semantic changes took place within the history of proto-Nostratic or later, in the separate history of the daughter languages.

[28] ***ńoɣ|ʕlE** (or ***ńaɣ|ʕlE**) ‘sinew’, ‘to tie together’ > **Hamito-Semitic**: Semitic: [1] *ˈnaʕ̣▽ˌl- ‘sinew’, ‘tie’ (noun) > Arabic naʕl- ‘nerf, boyau, morceau de cuir avec lequel on entoure l’arc au haut de la cambrure ou sur les côtés; chaussure, soulier, sabot’, Biblical Hebrew נַעַל ˈnaʕal ‘a sandal’, Ugaritic nʕl ‘shoe, sandal’, Syriac naʕˈl-ā ‘horse-shoe’, Mandaic nala ‘shoes, sandals’, Mehri nəʕāl, Eastern Jibbali nʕal ‘sandals’, Soqotri ˈnaʕal ‘footwear’; [2] *✓nʕl ‘to tie’ > Bibl. Hebrew ✓nʕl ‘to lock (a door by straps), close, tie sandals on one’s foot’, Ugaritic nʕl ‘binden, schließen’, Jewish Aramaic ✓nʕl ‘to tie a shoe’, Mandaic ✓nʔl ‘to shoe a horse, bind up, tie’, Arabic ✓nʕl ‘to give shoes to smb.’, Ge’ez (derived noun) nəʕūlt ‘widow whom the late husband’s brother marries by levirate’ (lit. ‘a tied one [f.]’) || **Uralic** *ńōle ‘arrow’ > Finnish nuoli ‘arrow’, Estonian nool ‘arrow. bow’ ¦ proto-Lappish *ńōlɜ ‘arrow’ > Norwegian Lapp njuollâ ¦ Erzya & Moksha Mordvin nal id. ¦ Cheremis nölö ‘arrowhead made of bone’ ¦ Permian *ńȯl / *ńȯlɣ- ‘arrow’ > Ziryene ńɜv / ńɜvɣ-, Votyak ńɜl ¦¦ proto-Ob-Ugric *ńɨ̄l▽ ‘arrow’ > proto-Vogul *ńɨ̄l▽ > Vogul ńēl, ńāl, ńɜ̄l; proto-Ostyak *ńal >

Vakh Ostyak ńal ¦ Hungarian nyíl ||| Samoyedic *ńɜəy > Tundra Nenets -ˈńʻi in туни tūńˈńi ‘gun’ (lit. ‘fire arrow’), Chaya Sölqup -ńīˁ in qʻēsʻəńīˁ ‘arrow for shooting at birds’, Kamasiian ˈńå ‘arrow, bullet’ |||| another line of semantic changement: Finno-Ugric *ńolV (or *ńalV) ‘to tie together’ > Hungarian nyaláb ‘bundle’ ¦ proto-Ostyak *ńula ‘together’ > Vakh Ostyak ńula || ? **Altaic**: Tungusic *°ńu꞉ˌlge (or *yu꞉ˌlge) > Ewenki ńulga ~ julga ~ yulga ‘arrow, iron arrowhead’.

[29] ***p|e̯šqE ~ *p|e̯qšE** ‘spear’ > **Ham.-Sem.**: Sem. *pVš|θχ- > Akkadian paš$u ‘hunting spear’ (‘ein Jagdspieß’) ||| West Chadic *pasuq- ‘arrow’ > Karekare pasku, Pero púžùk, Bole fɔsɔ, Jimi pussko ‘arrow’ || **Uralic**: *pekše ‘arrow (with a dull arrowhead)’ > Lowland Cheremis pikš ‘arrow, bow’, Highland Cheremis pikš ‘arrow’ ¦ Votyak puk‡č ‘bow; arrow-fish’ ¦¦ Ob-Ugric: Vakh Ostyak pŏɣ ‘arrow with a dull wooden arrowhead, arrow for hunting squirrels without spoiling their skin’ ¦ Lower Konda Vogul liʁanpāxtnəp-piwət ‘Keil mit stumpfer Spitze für die Eichhörnchenjagd’ (liʁan ‘squirrel’, pāxt- ‘to shoot’).

There is also a word (*ṭulˌiˌʳgˈV) that seems to mean ‘fishing net’. It actually means ‘fishing net, to cast a fishing net’ in several descendant languages. But its most ancient meaning is ‘veil, to spread like a veil/net’.

[30] ***ṭulˌiˌʳgˈV** ‘to spread like a veil/net, cover with a veil/net, catch with a net’ > **Hamito-Semitic**: Semitic *°✓ṭlɣʕ > Ge’ez ʔan-ṭolʕa ‘to spread, stretch, spread like a veil, veil, cover with a veil’, Tigre ዐንጦልዐ ʔanṭolʕa ‘to spread, stretch out’ (Ge’ez, Tigre ↔ Cushitic?) ||| Egyptian ʒˁ ‘to catch (fish)’ or sim. (< *ʒuʔʕV < *dˌuʔʕV < *ṭulgV) || **Kartvelian** *tχewl- ‘to fish by net’ > Old Georgian tχewl-, Georgian tχevl- id., Svan tχēl- ‘to look for, hunt’ || **Uralic**: Finno-Ugric *tulkV ‘seine, drag-net’ > Ziryene tɨl- ~ tɨv- id. ¦¦ Ob-Ugric *tŏləʁ ~ *tŏʁəl id. > proto-Vogul *tŏləɣ > Northern Vogul toliɣ, proto-Ostyak *tŏɣəl > Kazïm Ostyak tŏχəɬ || **Altaic** *tʻuĺE- > Turkic *tˌʻˌuĺa- ‘to hobble (a horse, etc.)’ > Old Turkic tuša-, Qazaq тұса– tūsa-, Qïrgïz tuša-, Tuva tůža-, Tofalar ťuša- id.; ↔ Turkic *tˌʻˌuĺāk ‘hobble’ > Old Turkic tušaɣ, Türkmen dušāq, Shamakhï Azeri tušaχ, Qazaq тұсау tūsaw, Tuva tůžaʁ, Tofalar ťušaʁ, Chuvash тăлă tьlь id., Qïrgïz tušō id.,

'fetters', Yakut tuhaχ 'loop, snare, chain, fetters' ¶ Türkmen, Tuva and Tofalar data suggest Turkic *t̠-, while Azeri tušaχ suggests *t'- ||| Tungusic *tule- 'to cast (a fishing net), install (a self-shooting bow, a trap, a snare)' > Orochi, Ude, Ulcha, Orok, Nanay, Ewenki, Negidal tulɜ-, Lamut tul-, Manchu tule- id., Orok tulɜgdɜ 'fishing net', tulɜči- 'to fish with a net' || ? **Dravidian** *tulV 'weaver' > Parji tula id.

Thus, in the Nostratic vocabulary we do not find confirmation of the idea that proto-Nostratic was spoken by people having bows, arrows and fishing-nets. If bow, arrows and fishing-net are indeed Mesolithic achievements, there is no proof that the proto-Nostratic culture was Mesolithic.

4. Hunter-gatherers

4.1. Hunting

The life of hunters is reflected in some Nostratic lexemes: the hunter *follows the tracks* (*goki, *ʳdˡEʕ|ɣ|χSV), casts a *spear* (*šubyV, *p|ẹ̄ešqE ~ *p|ẹ̄eqšE [cf. above [29]), tries to *hit the target* (*ṭaẹ̄V) and not to *miss the aim* (*menṭV).

[31] ***goki*** 'track' ('way'), 'to follow the track' > **Hamito-Semitic**: Cushitic *gʷVg|k- > Agaw *gūk- > Bilin gūg- (pl. gūkək), Hamta gʷug 'way' ¦¦ Beja gīg- 'to go' ¦¦ East Cushitic: Hadiya gōgo 'road', Kambatta goggō 'way' ||| Omotic: Zayse ˈgoge 'road', Shako kōku, Maji kok, Ari gōgí 'road, path' (loans from East Cushitic?) ||| Chadic *✓gk 'path' > West Chadic: Dera gókó, Bole gɔgɔ, Pero kɔ́kɔ̀ǯ 'road' || **Uralic** *koke 'to examine (a trap, snare), search' (→ 'find') > Finnish koke- 'to examine (a trap, snare), try' ¦ Skolt Lapp kuoʔkã- 'to examine (the fish net)' ||| Samoyedic *kə- 'to see, find' > Enets koabo ~ kuabo 'I look for, I find', Tundra Nenets xō-ś, Forest Nenets kō-ś 'to find', Taz Sölqup qo-qo 'to find, sea, discover', Mator коямъ 'I find' || **Altaic**: Turkic *Kog(V)- 'to follow the track, hunt' > Old Turkic qov- 'to follow, pursue, chase', Middle Turkic [13th c.] qov- 'to hunt', Chaghatay qaw-, quɣ- 'to pursue, drive away', Tuba, Quu-Kizhi qoɣ- 'to pursue', Khakas χoɣ- 'to follow, pursue smbd.', Osman qoɣ- ~ qov- 'to pursue', Turkish kov-, Türkmen qov- 'to chase, pursue' ¦¦ Chuvash хъv- ~ xu- 'to chase, pursue, follow'.

[32] *ʳdˀEʕSV or *ʳdˀEɣ|χSV 'to follow the tracks' > **Ham.-Sem.**: ? Sem. *°√dʕš|s > Arabic daʕs- 'trace, track, beaten road' ||| Chadic: Ngizim tásа v. 'find' || **Kartv.**: either [1] Kartv. *°ʒ|ʒ- > Georgian ʒi- (pres. ʒev-) 'search, look for', or [2] Kartv. *°ʒ|ʒɣ-/*°ʒ|ʒeχ- > Georgian ʒɣ(v)- / ʒeχ-: mi-ʒɣ(v)-/ʒeχ- 'etw. (z. B. Ideal) verfolgen', ga-ʒɣ(v)-/ʒeχ- 'let smbd. go first, follow smbd.' || **Indo-Eur.** *dēs- / (?) *des- v. 'find, to track (nachspüren)' > Greek δήω 'I shall find', Greek [Hesychius] ἔδηεν· εὗρεν '(he) found' ¦¦ Albanian ndesh 'antreffen', ndieh (< *des-sḱō) 'befinde mich' ¦¦ Old Church Slavonic **ДЄШѪ** dešǫ / **ДЄСНТИ** desiti v. 'find', Church Slavonic **ДОСНТИ** dositi, **ѹДОСНТИ** udositi 'to find, meet' (unless from *deḱ-) || **Altaic**: Mongolic *des > Class. Mong., Halha des 'following, next, subsequent, second', desle- v. 'be next, follow' ◇ If the Georgian cognate is ʒi-/ʒev-, the Nostr. etymon is *ʳdˀEʕSV, while if it is ʒɣ(w)-/ʒeχ-, the Nostr. word is to be reconstructed as *ʳdˀEɣ|χSV. The Arabic cognate is valid only of the verb √dʕs 'to tread upon' is derived from the noun and not vice versa.

[33] ***šubɣV** 'spike, spear, to pierce' > **Hamito-Semitic**: Sem.: Arabic √sbb 'to pierce' || **Kartv.**: Georgian šub-i 'spear' || **Uralic**: Finno-Ugric *šuɣe (< **√šuwɣe) 'spear, bear-spear, spike (of a weapon)' > Finnish (dial.) hui, huitti 'spool; (round) tip, summit', Estonian hui 'netting-needle; spool (for weaving)' ¦ Swedish Lapp suoj 'instrumentum quo retia texuntur', Pite Lapp ˈsuoɣɣą̊ 'netting-needle' ¦ Permian *šů > Ziryene шы šɨ 'spear, bar-spear, bayonet', Votyak ши ši 'sting, spike, bayonet' || ? **Altaic**: Mongolic *soɣuga > Class. Mongolian soɣuga, Halha coëo 'eye-tooth, tusk, fang, horn needle, awl' ¦¦ Manchu suɣfun 'awl'.

[34] ***ṭaṗV** 'to hit (the target)' ('to succeed, find, find an answer, identify, recognize') > **Indo-Eur.** *top- 'wohin gelangen, auf etwas treffen; Ort, wo man hingelangt oder hin will' > Greek τόπος 'place', τοπάζω 'to aim at, guess' ¦¦ ? Anglo-Saxon ðafian 'to consent to, permit, tolerate' ¦¦ Lithuanian tàp-ti to become', Latvian tapt id., pa-tapt 'hingelangen, wozu kommen können' || **Ham.-Sem.**: Sem. *√ṭbb > Syriac √ṭbb (perfect ṭab) 'to be informed, know, make inquiry', Arabic ṭabb- 'habile, savant,

versé dans une science; circonspect', √ʦbb: perfect (< adj. of state) ʦabba 'était habile, savant', Soqotri ṭeb 'he believed, knew', Ge'ez √ṭbb 'to be wise, prudent, sage' and Sabaic (derived verb) ṭbb 'to teach, proclaim' || **Uralic**: Finno-Ugric *tap(p)∇- 'to find, succeed, fit' > Finnish tapaan / tavata 'to find, meet, come across' ¦ Votyak tupa- 'to come to an agreement (after bargaining), to come to an understanding (with smb.); to fit' || **Altaic** *t'ap∇ 'to hit the target, find' > Turkic *t'ap- 'to find, hit the target, guess' > Old Turkic tap-, Middle Turkic [Ibn-Muhanna] dap- 'to find, learn', Yakut tap- 'to hit the target', Türkmen, Qumuq tap- 'to find', Azeri tap- 'to find, guess', Chuvash tup- 'to find, detect', tupъ 'solution of the riddle' ||| pre-proto-Mongolic *taβa- > proto-Mongolic *taɣa- 'to guess' > Dungxiang taɣa-, Class. Mongolian taga-, Halha tā- 'to guess, solve the riddle', Kalmuck tā- 'to tell the fortune, suppose', Ordos, Monguor t'ā- 'deviner, conjecturer'; Mongolic ↛ Ewenki tāɤ-, Lamut tā- 'to recognize\identify (smbd.), guess', Negidal tak-, Ulcha, Nanay taqō- 'to recognize\identify', Class. Manchu taqa- '(er)kennen, können', Sibe Manchu taqa-mə 'to identify' || **Drau.** *tāppₒ 'appointed time, proper time' > Tamil tāppu 'expected moment, apppointed time, convenience', Malayalam tāppu 'proper time, opportunity', Toda top 'time, chance'.

[35] *menṭ∇ 'to miss one's aim' (→ 'to pass by') > **Uralic**: Finno-Ugric *mentä- 'to miss one's mark, be mistaken' > proto-Lappish *mɛntē- id. > Lule Lappish mieddē- ~ mäddē- 'fehlen, Fehler machen, fehlgreifen, sich irren', Norwegian Lappiah mædᵈdet 'to miss (not hit), mistake (one's way)', Kildin Lappish mė̊ånda 'weg, fort' (← *'vorbei') ¦¦ Vakh Ostyak mintəɣtə- 'to miss one's aim (in shooting)'; Middle Lozva Vogul mänt ~ mäntä ~ mänti, Konda Vogul mänt ~ mēnt, Pelïmka Vogul mäńtl 'längs, entlang', Vogul åm mäntsəm 'passing past me' ('прохождение мимо меня')|| **Indo-Eur.** *ment- '(in) vain; liar, deceit' > Greek μάτην 'in vain, fruitlessly', μάτη 'fault' ¦¦ Latin mentior / mentīri 'to tell a lie', mentītus 'false' ¦¦ Old Prussian mēntimai 'wir lügen', epmēntimai 'wir belügen' || ? **Ham.–Sem.**: West Chadic *mant- 'to forget' > Hausa mâncḕ / mântā̀, Gwandara mǒči ¦ Goemay men, Montol mun,

Sura mander ¦ Bole mont-, Karekare mantan, Bele mòntú, Kirfi mùnd-, Gera mɔ̀ɔ̀nɜ̀- ¦ Miya man- id.

The game of the hunters: differents kinds of *antelope and deer* (*gurHa, *ʔEɬ̦i, *boča, *ʔoŕᵘˀ [cf. above [5]]), *bovines* (*buḴa, *čoma, *čˁaˀwˬ∇ˌR∇ [or *ču R∇]), *wild goats and sheep* (*ɣ|gawV, *bukEɣ|ʕ∇, *diga, *kˁäˀḉ∇), *wild boars* (*ʕ∇p̪∇r∇) Among terms of hunting terminology we find names for *herds* (*p̪oḴü), special names for *lambs and kids* (*gadi). In addition to ungulates — their main source of meat, they paid attention to *fur-bearing animals* (*bUyẑ∇), among them *squirrels* (*ʔ|hUr∇[-ba]) and *martens* (*ḳun|ɦ∇[ŕ∇]).

[36] ***gurHa** 'antelope, male antelope' > **Ham.-Sem.**: Cushitic *✓gʷrˁħˀ > Beja garuwa 'antelope' ¦¦ East Cushitic: Sidamo guruʔᵗm-iččo (pl. guruʔme) 'antelope, gazelle, roe' ¦¦ South Cush.: Iraqw gʷarêħi, Gorowa gʷeraʔahi, Alagwa gʷeraʔai, gʷarehe 'dik-dik antelope', Burunge gʷereha 'decula antelope' ||| Omotic: Wolayta, Dawro gārā 'decula antelope' ||| West Chadic: Goemay ǯirri ~ žirri 'roe antelope', Ngizim gɜ̀ràfɨ̀yà '(a kind of) antelope' ¦¦ Central Chadic: Buduma ŋgɜ́rɨ́, Logone garia 'antelope' || **Altaic**: Mongolic *gūran 'antelope, male roebuck' > Middle Mongolian guran '(a kind of) 'hornless antelope', Class. Mong. gura(n) 'antelope', Halha-Mong. gur 'male deer', Buryat гуран 'wild goat, elk', Dörböt Oirat gurun, Kalmuck guru 'male roe-deer; saygak antelope'; Mongolian ↛ Southern Ewenki gūran 'wild goat'; the length of the Mongolic *u is suggested by the loanword in Ewenki ||| Korean: Middle Kor. kòránɨ́, New Korean koranni, Korean (Northern dialects) korani 'deer'.

[37] ***ʔEɬ̦i** 'deer' > **Ham.-Sem.**: Sem. *ˈʔayl- 'ram' > Biblical Hebrew אַיִל ˈʔayil (pl. אֵילִים ʔēˈlīm), Ugaritic ʔ,l (= *ʔēl-u) 'ram', ? Akkadian (ʏ)āl-u id., Jewish Aramaic אַיָלָא ʔayˈl-ā 'Schiffsbock'; the ancient meaning 'deer' has been preserved in the derived Sem. noun *ʔayˈyal- 'deer, mountain goat' > Biblical Hebrew ʔayˈyāl *'Cervus capreolus'*, Ugaritic ʔ,yl, Jewish Aramaic אַיָלָא ʔayyāˈl-ā, אֵיָלָא ʔēˈl-ā, Syriac ʔayyal-ā 'deer', Mandaic aiala 'deer, hart', Arabic ʔayyil-, ʔiyyal- ~ ʔuyyal- 'mountain goat, stag', Ge'ez hayyal 'ibex, mountain goat' (the origin of h- is mysterious), Akkadian ayyal-u 'deer'; Canaanite > Late Egyptian ỉjr (= *ʔayyāli ~*ʔayyōli gen., according

to Vycichl) > Coptic eiul, eeiul, iul, eul id. || **Indo-Eur.** *ʔh̥el-n- 'deer' > Greek ἔλλός ~ ἐλλος (-λλ- < *-ln-) 'young deer'; (with the suffix *-bʰo-) Greek ἔλαφος 'deer' (<*el-n̥-bʰo-s) ¦ Armenian ełn (gen. ełin) 'female deer' ¦ Old Irish elit (< *eln̥-t-) 'chamois', Welsh elain 'female deer' ¦ Old Lithuanian ellenis, Lithuanian élnis, élnias 'deer', Latvian alnis 'elk', Prussian alne 'female deer' ¦ Old Church Slavonic jelenь, Russian олень 'deer', Old Church Slavonic alьnь, lanь, Russian лань 'female deer, fallow dear' ¦ ? Tocharian A yäl (with a prothetic y-) 'antelope'; IE *h̥el-n- seems to go back to the oblique form (with *-n-) of a heteroclitic stem; IE derived stem *ʔel-k̂-/*l̥-k̂- > Old Indian ṛśyas 'male antelope', Old High German ëlho, Anglo-Saxon eolh, Old Norse elgr, Russian лось 'elk' || **Uralic**: Tundra Yukagir ile 'deer' || **Altaic**: Turkic *elälik 'roe-buck, female wild goat' > Old Turkic elik id., Shor, Qïrghïz, Qaraqalpaq elik 'roe-buck', Tuva elik, Tofalar ɛlık 'female roe', Middle Qïpchaq (XIII c.) elik 'male gazelle', Khakas elĭk, Altay elik 'roe-buck, female wild goat', Bashqurt ilьk 'female wild goat', Azeri älik 'roe' ||| Mongolic *ili > Class. Mong. ili, Halha-Mong. il, Kalmuck ilə 'young deer, fawn' || **Drav.** *il(ar)∇- '(a kind of) deer' > Malto ilaru 'mouse deer' ||| Telugu iṟṟi (< *il-r∇) 'antelope' || **Kartv.**: Lashkhi Svan ilw 'chamois', Lower Bal Svan il ~ hil 'roe'.

[38] ***boča** '(young) deer' > **Kartv.** *°boč- > Georgian boč-iḳ-i 'one-year old deer', boč-oła 'one-year old calf' || **Uralic** *poča 'reindeer; reindeer fawn' > Finno-Ugric: proto-Lapp *pɔ̄cɔ̄y 'reindeer' > Norw. Lapp boaʒo, bɑcᵻcu- ~ bɑwcu- '(tame) reindeer', Lule-Lapp på̄cōy id. ¦ Cheremis püčö ≙ pučь ≙ püćö 'reindeer' ¦ Sarapul Votyak pužey id. ||| ? Samoyedic: Kamassian poʔdu 'goat, *Capra sibirica*', Koibal (18th c.) podo 'goat', pooto '*Cervus capreolus*' ||| Yukagir pəja, pəje 'elk' || **Altaic**: Tungusic *buʧan '(a kind of) deer' > Negidal boʧan '*Cervus elaphus xanthopygos*', Orochi buča(n-) id., Ulcha boča(n-) ~ buča(n-) id., Nanay bočã ≙ boca(n-) ≙ bučã id., ? Manchu bucin 'hirschartiges Fabeltier mit langem Schwanze' (reinterpreted by folk etymology as abbreviation from buhu 'deer' + tucin beginning'), ? Lamut bū̆ʧɜn '*Moscus moschiferus*' → Yakut bū̆čān ~ bī̆čān id. (ealier also '*Capreolus*'?) → ? Ewenki bī̆ʧɜ̄n 'roe,

Capreolus'; the route of borrowing may have been different as well: from an unknown Tungusic source to Yakut and then to Lamut and Ewenki || ?? **Ham.-Sem.**: Sem. *√bδχ > Arabic baδaχ-, buδχ- 'lamb' (if *-δχ- < *-θχ-) ||| ?? East Chadic: Lele bìsí 'duiker'.

[39] ***buḴa** 'bovine(s)' > **Hamito-Semitic**: Semitic *ba'ḳar- 'cattle' > Hebrew בָּקָר bā'ḳār, Jewish Aramaic בַּקְרָא baḳ'r-ā, Syriac ܒܰܩܪܳܐ baḳ'r-ā 'cattle', Arabic baqar- '(wild\domesticated) bovines, ox, bull, cow', Sabaic bḳr 'bovines, head of cattle'; der. Semitic stem *buḳār- > Arabic buqār- 'head of (large) cattle', Akkadian buḳār- 'cattle' ||| ? Berber *√bḳr > Ahaggar Twareg baɣar v. 'be rich' ||| East Chadic: Birgit bògòrò 'male antelope', bògòréɣ 'female antelope', Dangla bógór 'antelope', ? Mokilko ḅòrgú 'horse antelope (kudu), ? Migama ḅâɾgú 'oryx antelope' || **Indo-European** ≈*bū̆k-/bowk- 'bull' > proto-Slavic *bɨkъ (< *būko-) 'bull' > Bulgarian бик, Serbo-Croatian bȉk, Slovene bȉk, Czech, Slovak býk, Polish byk, Russian бык 'bull'; proto-Slavic *bъkъ (< *buk-) > Serbo-Croatian bȃk 'bull' ¦¦ Celtic f. *bukk-ō 'cow' > Old Welsh buch 'iuvenca', Cornish buch 'cow', Breton buc'h~buoc'h 'cow' ¶ IE *b- < *bʰ- due to the lE law of incompatibility of voiced aspirates and voiceless consonants || **Altaic**: Turkish *buka 'bull, sire bull' > Old Turkic buqā, Chaghatay buɣa, Turkish boğa, Türkmen, Volga Tatar buga, Middle Qïpchaq buɣa, Qazaq, Uzbek, East Turkic buqa, Azeri, Crimea Tatar, Karaite, Qumïq, Nogay, Qaraqalpaq, Bashqurt, Yakut buɣa, Khakas puɣa, Tuva p̄uɣa, Tofalar p̄uɲa 'bull' ||| Mongolic (< Turkic?) *buqa 'bull' > Class. Mongolian buqa id., Halha buɣ 'sire-bull', Kalmuck buχŭ 'Stier'.

[40] ***čoma** 'aurochs, wild bovine' > **Kartv.** *°čoma > Imereti Georgian čoma 'cattle (Rindvieh)' || **Drav.** *coma 'wild buffalo' > Pengo homa, Manda hama 'bison', Kui soma 'wild buffalo', Kuwi homma ≙ homa 'sambar'.

[41] ? ***č'a'wɪ∇ɹR∇** (or ***čuR∇**) 'bull, calf' > **Ham.-Sem.**: Sem. *'θawar- 'bull' > Hebrew שׁוֹר 'šōr, pl. שְׁוָרִים šawā'rīm, Ugaritic θr, Bibl. Aramaic pl. תּוֹרִין tō'rīn, Jewish Aramaic תּוֹרָא tō'r-ā, Syriac ܬܰܘܪܳܐ taw'r-ā, Arabic ثَوْر θawr-, Epigraphic South Arabian θwr, Ge'ez, Tigre ሖር sōr,

Akkadian šūr- | Sem. ⇢ IE *tawro-s 'bull, aurochs' > Mycenian Greek tawros, Greek ταῦρος id. ¦¦ Albanian tarok, tarak ¦¦ Latin taurus, Oscan acc. ταυρομ, Umbrian acc. pl. turuf, toru id. ¦¦ Old Irish tarb, Irish tarbh, Welsh tarw, Breton tarv, Cornish tarow id. ¦¦ Slavic *turъ > Old Church Slavonic **тоуръ** turъ 'aurochs' ¦ Lithuanian taũras 'aurochs', Prussian tauris 'bison'; Baltic ⇢ Finnish tarvas 'reindeer' ¦¦ Old Norse þjórr, Swedish tjur, Dutch (dial.) deur 'bull' || **Indo-European** *stewr-/stowr- 'bull' > Avestan staora 'large cattle', Middle Persian stōr 'draught-animal', Persian sutūr ~ ustūr 'beast of burden (horse, mule, ass)' ¦¦ Gothic stiur 'male calf, bull', Old Norse stiórr, Old High German stior, German Stier, Anglo-Saxon stēor 'bullock, steer', English steer || **Altaic**: [1] Tungusic *°ʗur- (~ *ʗir-?) > Ewenki ʗurup 'wild deer (2–3 years old)' and possibly Urmi Ewenki ʗirak, Maya Ewenki ʗirāp 'elk (4 years old)', Negidal ʗɪrap 'male elk (3–4 years old)' |||| [2] Possibly Class. Mong. ʒari 'wild deer' and Altay, Teleut, Quu-Kizhi ʗar 'ox (Ochs, Arbeitsochs, кладеный\рабочий бык)', Baraba, Küärik čar 'ox' ⇢ Class. Mong. car, Kalmuck car, Halha шар 'castrated ox' (in this case Nostr. *awR > Alt. *aR).

[42] ***ɣ|gawV** 'wild sheep\goats', (→ or ←) 'wild game' > **Indo-Eur.** *xowi- 'sheep' > Hittite UDU-iš [= *xaw-is] 'sheep', Luwian xawi-, Lycian χawã id. ||| Narrow IE *ˌhˌowi-(s) 'sheep' > Old Indian ˈavi- ¦¦ Greek ὄις id. ¦¦ Latin ovi-s ¦¦ Old Irish ói 'sheep' ¦¦ Old Norse ær, Anglo-Saxon éowu, éowe, Old Saxon ewi, Old High German ouwi, ou 'sheep', English ewe, as well as Gothic awistr 'sheep-cote, sheep-pen', awēþi 'flock of sheep' ¦¦ Lithuanian avìs, Latvian avs ¦ Old Church Slavonic ovь-ca, Russian овца 'sheep'; Church Slavonic, Old Russian ovьnъ, Serbo-Croatian òvan, Bulgarian oˈвен, Czech oven 'ram' ¦¦ Armenian hoviw (< *ˌhˌowi-pā-) 'shepherd' || **Ham.-Sem.**: Egyptian ʿw.t 'Kleinvieh (Schafe und Ziegen)', 'Wild', 'vierfüssige Tiere' ||| ?? West Chadic: Angas-Goemay *ɣV 'goat' > Sura ɣə̀, Angas ɣʉ̄, Yiwom ɣə̄ ¦ Fyer ʔõ̀ id. ¦ ? Warji àwày id. ¦¦ Central Chadic: Gude gr.: Nzangi họwẹ, Bata-Garua hŭé 'goat' ¦ Mandara: Nakatsa ɔɣʷa, Glavda ʔágʷà, Dghwede ɣ́ʷè, ɣʷè id., Giziga ʔáw ¦ Zime-Batna úhʷú id. ¦¦ ? East Chadic: Dangla áw-kò

id. || **Altaic** *ābV 'wild game, hunt' > Turkic *āb id. > Old Turkic āv 'hunt', Türkmen āv, Turkish av, Uzbek ɑw, East Turkic avᵴåwᵴow, Qumïq haw, Crimea Tatar, Karaite av 'wild game, hunt', Qazaq, Volga Tatar av, Qïrghïz ū 'hunt' ||| Mongolic *aba > Middle Mongolian, Class. Mong. aba, Halha av 'chase, hunt' ||| ? Tungusic *abdu-(ˌnˌ) 'cattle, flock' > Ewenki abdu id., 'domesticated reindeer', Lamut abdu 'husbandry, property', Negidal abdun 'flock', Orok abdu 'husbandry, property, wealth'.

[43] ***diqa** 'goat' > **Kartv.** *dqa- 'goat' > Old Georgian, New Georgian tχa, Megrelian tχa- (pl. tχal-), Laz (m)tχa- [pl. (m)tχal-], Svan daqɜl-, daq- || **Ham.-Sem.**: Omotic *dV̀g-~*dV̀ḳ- 'capricorn, lamb' > Oyda doge 'greater kudu', Basketo daḳiši, Doka dakiša 'lamb', Badditu deggele 'goats' ||| West Chadic: Angas-Goemay: Chip dɨ̀gun 'he-goat', Kofyar dɜgúŋ id. ¦ Ron: Fyer ⁿdákùs 'he-goat' ¦¦ Central Chadic: Padokwo dúg-zumạ id. ¦ Tera šīg 'goat' ¦¦ East Chadic: Ndam ḍʒ́gâ, Tumak šig 'goat' || **Indo-Eur.** *digʰ-~*dikˀ- 'goat' > Greek (dial.) [Hesychius] δίζα 'goat' ¦¦ Albanian dhi ¦¦ Old High German ziga 'goat' (> German Ziege) ¦¦ Armenian tik 'leather bottle, goat's skin' ◇ IE *-k- is a regular reflex of the consonant *-q̣-; the origin of the voiced *-gʰ- is not clear; the initial *d- for the expected *dʰ- is probably due to the IE incompatibility law, forbidding a combination of voiced aspirates and voiceless consonants in the same root.

[44] ***kʳäˀḉ́V̀** 'wild goat' (or 'sp. of antelope') > **Kartv.**: Svan ḳwiçra 'wild goat' || **Ham.-Sem.**: Berber *√ɣs (meta-emphatization from *√k-ʂ) > Ahaggar Twareg ti-ɣse, Iznacen, Rif ṯi-χsi 'goat' ||| Omotic: Bencho kėš 'goat' ||| West Chadic: Hausa káçáwɾɪ̀ '(a kind of) antelope', Ngizim gáskây 'roam antelope' ¦¦ Central Chadic: Kilba kušiši 'goat' || **Altaic**: Turkic *kˇäɕi 'goat' > Old Oghuz, Chaghatay, Karaite käči, Turkish keçi, Osman ǧäǯi, Azeri, Gagauz keči, Türkmen geči, Volga Tatar käǯä, Bashqurt käzä.

[45] ***bukEɣ|ʕV̀** 'billy goat, ram' > **Ham.-Sem.**: Sem.: ? Ge'ez ፀሐክbaħkʷ 'ram, billy goat' (→ Ge'ez ዐሐክbaħakʷ id.) (acc. to Leslau, from Cushitic) ||| Berber *√bgg > Ahaggar Twareg a-baǵuǵ 'young ram' ||| Cushitic *√bkʕ (> *√bgʕ by assimilation) 'sheep, goat' > Beja bōk, Amar'ar Beja bok 'billy

goat' ¦¦ Agaw *bəgₗ∇ⱼʕ- 'sheep' > Khamir beg-a (pl. big), Kwara bag-a, Kemant bəga ↛ Ge'ez በግዕ baggaʕ 'sheep, ram', Tigray bəgʕi, Tigre bəggʊʕ id.; Tigray → Bilin bəgg-a (pl. bəgg) id. ¦¦ South Cush.: Iraqw, Gorowa bêʕi, Alagwa bēʕi 'sheep', Burunge bēʔ-imo, pl. bēʔ-a id., Kwadza baʔamuko 'ewe lamb', Dahalo ɓèʔa 'buffalo' ||| Omotic: Kafa bagē, Shinasha baggō 'sheep' ||| Chadic *(m)bak|g 'ram, sheep' > West Chadic: South Bauchi: Kir mbak 'male' (referring to rams in: mbak par+m 'ram'), Dira bə̀gə́lə́, Geji bàgə́llà 'ram' ¦¦ Central Chadic: Gude bàgá, Fali of Jilbu bə̀gà, Fali of Muchella bə̀gə̀, Fali of Bwagira bə̀gə̀n, Bata-Garua mbə́ge, Bata-Demsa bāgé 'sheep', Mwulyen m̩bâgá 'ram', m̩bágàtí 'sheep', Bachama m̩bə̀gə́ 'ram', mbə̀gátɨ́ 'sheep', Gudu mbœ́ksü 'sheep' ¦ Glavda mbákəlaka, Gava mbàkùlə́kà 'ram' || **Indo-Eur.** (*bʰŭ̄ĝHo- >)*bʰŭ̄ĝo-s ~ ("Koseform", according to Pokorny) *bʰukko-s 'billy goat, ram', f. *bʰŭ̄ĝ-ā ~*bʰukk-ā 'she-goat, ewe' (Devoto: '*Capra prisca*') > Av būza 'he-goat', New Persian buz 'goat (male or female)' ¦¦ Armenian buc '[sucking] lamb' ¦¦ Celtic: Middle Irish bocc, pocc, Welsh bwch, Cornish boch, Breton bouc'h 'Bock' ¦¦ Germanic *bukka- > Old Norse bukkr, bokkr, bokki 'buck', Anglo-Saxon bucca > English buck, Old High German boc > GermanBock || ?σ **Altaic:** Mongolic *bugu 'deer' > Class. Mong. bugu, Halha-Mong. buga, Kalmuck buɣə̆ 'male deer', Monguor b_ug_u 'deer', Middle Mongolian buɣu- 'deer'; Mongolian → some Tungusic lgs.: Ewenki buɣu, Solon boɣo '*Cervus elaphus xanthopygos*', Manchu buɣu ~ buχo ~ buχu 'deer' ||| Turkic *bugu > (or Mongolian ↛) Old Uighur (13th c.) buɣu 'deer', Turkish (dial.), Uzbek, Qïrghïz buɣu, Nogay buɣı 'male deer', Chaghatay بوغو buɣu 'kind of antelope or wild goat', Qazaq bŭɣı 'deer'.

[46] *ʕ∇ᵽ∇r∇ 'wild boar' > **Ham.-Sem.**: Sem. *√ʕpr > Arabic ʕifr- ~ ʕufr 'wild boar, swine, young pig' (Freytag: ʕifr- 'porcus, aper', ʕufr- 'porcus') || **Indo-Eur.**: Narrow Indo-Eur. *apro-s 'wild boar' (with *a on the analogy of *kapro-s 'he-goat') > Latin aper, -ī 'wild boar', Umbrian apruf, ABROF id. (accus. pl.), aprunu id. (acc. sg.) ¦¦ Germanic *ebura- 'wild boar' > Anglo-Saxon eofor, Middle Low German ever, Old High German ebur, German Eber ¦¦ Balto-Slavic *weprya- (with *w- on the analogy of some other word) > Latvian vepris 'castrated boar' ¦ Slavic

*vepr'ъ ~ *vepr'ь 'wild boar' > Old Russian vepr'ь, Russian вепрь, Bulgarian 'вепър 'wild boar', Ukrainian 'вепер 'wild boar, hog', Serbo-Croatian vèpar, Polish wieprz, Czech vepř 'hog' ¦¦ ?σ Thracian ἔβρος 'ram'.

[47] *ʕir'i' '(male, young) artiodactyl' > **Ham.-Sem.**: Sem. *'ʕayr- ~ *ʕīr- 'male wild ass, ass foal' > Biblical Hebrew עַיִר 'ʕayir, Samaritan Hebrew 'īr 'male ass, ass foal', (with a possessive pronominal suffix) Biblical Hebrew עִירוֹ ʕī'r-ō 'his ass foal' (the pl. form of the Masoretic tradition עֲיָרִים, עֲיָרִם ʕăyā'rīm is on the analogy of *'1a2a3- nouns, cp. the Samar. Hebrew cognate form עירם 'īram), Ugaritic ʕr, Jewish Aramaic עִירָא ʕē'r-ā 'ass foal', Arabic ʕayr- 'wild ass, ass' || **Kartv.** *°ir- > Georgian irem- 'deer' || **Indo-Eur.** *'ĥ'er(i)- > Narrow IE *er-, eri- '(some) horned artiodactyl' > Latin ariēs, ariēt- 'ram' ||| Baltic: Prussian eristian 'Lämmchen', Lithuanian (j)éras, Latvian jêrs 'lamb' |||| NalE *er(i)-bʰ- (with the suffix *-bʰ(o)- of animal names) > Greek ἔριφο-ς 'Böcklein, junge Ziege' ¦¦ Celtic: Old Irish heirp (*erbʰ-ī-) 'dama, capra', erb(b) (*erbʰ-ā-) 'cow', Gaelic earb 'Reh' ¦¦ Tocharian yriye, yari 'lamb' || **Drav.** *ir- '(a kind of) deer, stag' > Old Telugu iri 'stag', Tamil iralay 'stag, kind of deer', Kannada eraḷe, erale, Tulu eraḷe 'antelope, deer' ◇ The IE root results from coalescence of two Nostr. roots: the one in question and Nostr. *ʔerq'i' '(a species of) horned ruminant artiodactyl'. I am grateful to V. Blažek for drawing my attention to this detail and to the Tocharian cognate of the root.

[48] *ɒoḴü 'pack, wild cattle' > **Indo-Eur.** *pekᵘ / *pekᵘe- 'cattle' > Old Indian 'paśu-~pa'śu- (gen. paś'vaḥ) 'cattle', Avestan pasu- id. (mainly 'Kleinvieh') ¦ Latin pecū (gen. pecūs), pecus (gen. pecoris) 'cattle', Umbrian pequo 'pecua' ¦ Germanic: Gothic faihu 'property', Old Norse fē, Anglo-Saxon feoh, Old Saxon fehu, Old High German fihu 'Vieh' ¦ Lithuanian pekus, Prussian pecku id. || **Altaic** *p'ok'üŕ- 'bovine animal, bull' > Turkic *ˌhˌöküŕ-/*ˌhˌokuŕ- 'bull, ox' > Old Turkic öküz 'bull, ox', Sarï-Yugur kus~qus, East Turkic öküz, (dial.) höküz, Uzbek hωkiz 'ox', Turkish öküz, Türkmen öküδ, Azeri öküz, Crimea

Karaite ögüz, Trakai Karaite öǧüź 'bull, ox', Qumuq, Qarachay-Balqar ögüz 'ox', Crimean Tatar oğuz 'bull', Lobnor ögüs 'bull', Qazaq, Nogay, Qaraqalpaq ögiz 'ox', Volga Tatar ügьz, Bashqurt ügьδ 'bull', Yakut oɣus 'ox, male domestic animal', Chuvash ӳъg_ъr 'bull' ||| Mongolic *ɸüker 'bovine animal (bull, ox, cow)' > Middle Mongolian hüker 'large cattle', Class. Mongolian ü̈ker, Halha, Buryat үхэр, Kalmuck ükr̥, Moghol ükår, Dagur xůkůr, Dongxiang fugie(r), Monguor fug_uor 'bull, ox' || ??? **Ham.-Sem.**: East Chadic: Ndam pàgə̀r 'antelope'.

[49] ***gadi** (or ***gati**?) 'kid, young goat', ? '(a kind of) antelope' > **Ham.-Sem.**: Sem. *ˈgadiɣ- 'kid, lamb' > Biblical Hebrew גְּדִי gəˈḏī 'kid\lamb', Punic gdʾ, [Plautus] GADE, Old Aramaic gdʾ 'goat', Jewish Aramaic גַּדְיָא gaḏˈy-ā 'kid\lamb', Syriac ʻgaḏˈy-ā 'kid', Mandaic gadia 'kid, young goat', Arabic ǧadɣ- 'kid (chevreau)', Akkadian gadû 'male kid' ||| Berber *ɣaḍ (< pre-Berber *ḳaḍ) 'kid, (young) goat' > Ahaggar Twareg e-ɣəḍ, Tayert, East Tawellemmet e-ɣьyd, Ghat i-ɣid, Ghadamsi a-ʕīd (pl. ʕid-ān) 'kid', Ait-Izdeg i-ɣəyd 'young billy-goat (jeune bouc, chevreau)', Tashelhit a-ɣåḏ 'billy-goat' ||| Chadic: West Chadic: Hausa gàdā́ 'crested duiker (antelope) *Cephalophus Grimmi*', gàdár kúrmì 'duiker *Cephalophus rufilatus*', Pa'a gàtarā́ 'buck' ¦¦ Central Chadic: Zime-Batna gódàɣ 'buck', Dghwede xə́də́ gírè 'antelope' || **Indo-Eur.** *gʰ|ǧʰaydo- '(young) buck, goat' > Latin haedus 'kid, young goat' ¦¦ Gothic gaits, Old High German geiz, Old Norse geit, Anglo-Saxon ʒāt > English goat ¶ The *media* *-d- (for the expected *-dʰ-) is obscure || **Drav.** *kaṭ- 'young male of horned domestic animal' > Tamil kaṭā, kaṭavu, kaṭay 'male of sheep\goat\buffalo', kaṭāri, kiṭāri 'heifer, young cow', Malayalam kaṭā, kiṭā, kiṭāvu 'young male of cattle', Kota kaṙc na·g 'buffalo calf between 2 and 3 years', kaṙc kurl 'cow calf between 2 and 3 years', Kannada kaḍasu, Kodagu kaḍɨc i, Tulu gaḍasə 'young cow\buffalo', Gondi kāṙā 'young buffalo', Konda gṙālu, Kui grāḍu 'calf', Kui kṙaḭ 'young female buffalo\goat', Kurukh kaṙī id., kaṙā 'young male buffalo', Brahui xaṙ 'ram', xarās 'bull, bullock' ◇ The preconsonantic (rather than expected postconsonantic) position of *ḭ, *ɣ in Berber and Indo-Eur. is due to

metathesis (possibly favoured by root structure patterns in both languages).

[50] *bUyə̂∇ 'fur-bearing animal' > **Indo-Eur.** *bʰel- 'marten' or sim. > Latin fēlēs 'wild cat, marten, polecat' ¦¦ Welsh bele (< *bʰelego-) 'marten' || **Uralic** *poyə̂∇ 'ermine' > proto-Lapp *pōytɜk id. > Norw. Lapp buoidâ ~ buoiˈdâgâ, Kildin Lapp puy:deɣ ||| Samoyedic: Tundra Nenets пия, пиякo, Forest Nenets pʸīy:eą̑ ≙ pīy:eą̑, Bay Enets fiéda, Nganasan fīd́u, pīd́u, Mator hudja 'ermine' ¶¶ Nen пиякo and originally Lapp *pōytɜk are diminutive forms || **Altaic**: Mongolic *bulˈuˈgan 'sable' > Middle Mongolian bulugan ~ bulɣan, Class. Mong. bulagan, Halha-Mong. булга(н), Kalmuck булнн bulɣăn id. || **Drav.** *pulˌliˌ 'tiger' > Tamil puli, pul, Malayalam, Kannada, Telugu puli, Kota puʒ, Toda püʂɣ, Tulu pili, Koraga hili, Kolami, Naikri pul, Naiki pul(a), Gadba pullu ≙ pulu ≙ berpul, Gondi pullī ≙ puli ≙ pul.

[51] *ʔ|hUr∇(-ba) 'squirrel or a similar animal' > **Ham.-Sem.**: Sem. *°ʔ|h∇rrab- > Akkadian arrabu 'dormouse (?)', 'jerboa (?)' || **Indo-Eur.** *wer- (and with reduplication: *werwer-, *wewer-, *waywer-, *wiwer-, *wāwer-) 'squirrel' and sim. > New Persian varvara 'squirrel' ¦¦ Latin vīˌverra 'polecat' ¦¦ Welsh gwiwer, Breton gwiber 'squirrel' ¦¦ Lithuanian vaiverìs ~ vaivaras ~ vaivarys 'male polecat', vėverìs, vaiveris, voverìs, voverẽ 'squirrel', Latvian vãvere, -is id., Prussian weware id. ¦ Slavic *věver-ьka, -ika 'squirrel' > Old Church Slavonic věverica, Polish wiewiórka, Czech veverka, Ukrainian вивipка, Serbo-Croatian (v)jeverica ¦¦ Germanic *aį̯k-werna~*īkwerna 'squirrel' > Anglo-Saxon āc-weorna, Old Norse īkorni, Old High German eihhurno, eihhorn, German Eichhhorn 'squirrel' || **Uralic** *ora, *ora-pa 'squirrel' > Finnish orava 'squirrel', Estonian orav, oravas id., proto-Lapp *ɔ̄rēv > Norw. Lapp oarˈre ¦ Erzya & Moksha Mordvin ur 'squirrel' ¦¦ Cheremis ur 'squirrel' ¦¦ Ziryene ur id. ||| Samoyedic: in a Samoyedic language of the Sayan region (Pallas: 'ejus stirpis monticolis sajanensibus') orop 'Sciurus striatus' || ? **Drav.** *uṟutt- > Tamil uṟuttay, Telugu uṟuta 'squirrel'.

[52] *ḳunʲ̀ʔ∇(ŕ∇) 'small carnivore (marten, polecat, wild cat, or sim.)' > **Kartv.** *ḳwenr- 'marten' > Old Georgian ḳuerna-, Georgian ḳverna-, Megrelian ḳvinor-i, Laz ḳvenur-i, Svan rḳwen- ~ ḳ(w)en- id. || **Indo-Eur.** (attested in Balto-Slavic only) *keun-/*koun- 'marten' > Lithuanian kiáunė, kiaunẽ, Latvian caûna, -e, Prussian caune id. ¦ Slavic *kuna 'marten' > Church Slavonic **кѹна** kuna 'ἀΐλουρος, felis', Bulgarian 'куна, Serbo-Croatian, Slovene kúna, Czech, Polish kuna, Old Russian **кѹна** kuna, Russian (dial.) 'куна ~ ку'на, Ukrainian ку'на 'marten'; derived Slavic *kunica 'marten' > Church Slavonic **кѹница** kunica 'ἀΐλουρος, felis', Serbo-Croatian kùnica, Slovene kúnica, Polish kunica, Russian ку'ница 'marten' || **Ham.-Sem.**: South Cushitic: Iraqw qaínâʔi/a 'civet cat' ||| ? Chadic: West Chadic: Hausa kʸânwà, Pero kə́ndà 'cat', Bole šənwa 'wild cat' ¦¦ East Chadic: Somray kójna 'cat' ||| ? Sem. *°ḳ∇nd∇r- (< **ḳ∇nr-?) > Arabic قندر qndr (with unknown vowels) 'beaver' || **Altaic** *kʲ'ⱼüŕänä (metathesis from **kʲ'ⱼünäŕä) 'marten, polecat' > Turkic *kʲ'ⱼüŕe|än > Narrow Turkic *kʲ'ⱼüze|än 'polecat' > Old Turkic küzän id., Cuman kara kürzen 'polecat', Türkmen gö̈ðen, Uzbek сассиқ кӯзан sassiq kwzan, Qazaq, Altay, Khakas küzen, Volga Tatar көзән kө̊zän, Bashqurt kө̊ðän 'polecat', Tuva küzen 'marten' ¦ Old Bulghar ѣ⇒ Hungarian görény 'polecat' ||| Mongolic *kürene > Class. Mong. kürene, Halha-Mong. хүрнэ 'skunk, polecat, weasel', Kalmuck күрн kürnə, kürŋ̊ 'polecat, iltis' ◇ The word may have denoted some small carnivore (marten, polecat, wild cat, or ichneumon; all of them live in different parts of Southwestern Asia; in modern Israel the marten is known as נְמִיָּה nimi'ya).

4.2. Gatherers

They *harvested* (*qaRp|ḇ∇ and *ʒük∇; see above entries [15] and [16]) different kinds of *cereals* (*gaL∇ and *χänṭ∇ cf. above entries [17] and [18]; *diḳ∇), plucked *figs* (*ʔibrE [1], *ʒ|ʃ́ugb∇), other kinds of *fruit* (*bʳiˀʳ́ʳuwˀg̱a), *nuts* (*ḲuS∇, *L∇ₜwⱼž∇), possibly *pistachio nuts* (*buṭ∇), gathered several kinds of *berries* (*mʳoˀₜɣⱼ2̂∇, *marₜɣⱼa) and possibly *peas* (? *ḴEr∇), dug out *root-crops* (*mʳuˀrḳ∇[-ŋḲ∇]).

[53] ***diḳ∇** 'edible cereals or fruit' > **Hamito-Semitic**: Berber *ḏāḳ- > Ahaggar Twareg taḏaq (pl. tiḏāɣīn) 'grain (of cereals)', Taitoq taḏaq (pl.

tiǧaɣin) 'grain (of wheat, barley)' ¶ The vowel *-ā- belongs to the Ham.-Sem. derivational pattern of collective nouns ||| ? Egyptian dḳr 'fruit' (a general word for edible fruit) || **Kartv.** *diḳ- 'wheat' > Georgian diḳa 'wheat (*Triticum persicum*)', Laz diḳa 'wheat' || **Altaic** *diK- ⇾ diK-ktä 'edible berries' > Turkic *jigdä 'edible berries (of *Elaeagnus*), the berries *Zizypha rubra*' > Old Turkic jigdä 'jujube tree (*Zizyphus angustofolia*) and its fruit (an edible berry)' or '*Elaeagnus*', Türkmen iɣde '*Elaeagnus* and its berry; date fruit', Türkmen (dial.) žigde '*Elaeagnus*', Turkish iğde, Azeri iɣdä, Qïrghïz, Qaraqalpaq žiɣde, Qazaq žьɣde, Uzbek žiɣda ~ žiɣdä '*Elaeagnus* and its berries' ||| Tungusic *ʒikte 'berry' > Ewenki jiktɜ id., Negidal jiktɜ 'great bilberries, bilberries, whortleberries', Orochi, Ude žiktɜ 'great bilberries' || **Drav.** *tik$_{L}$k$_{J}$∇ > Kurukh tīʁъl 'rice, paddy cleansed of its husk', Malto tiqalu 'rice'.

[54] *ʒ|ʒugb∇ '(a kind of) fig tree' > **Ham.-Sem.**: Sem. *°√zɣb > Arabic ʔazɣab- 'a big fig-tree' ||| ? Egyptian dɜb 'fig, fig-tree' ||| Central Chadic: Glavda acúwa 'fig tree' || **Drav.** *cuv- 'fig, fig tree' > Tamil cuvi 'white fig, *Ficus infectoria*; stone fig, *Ficus gibbosa parasitica*', cuvalaị 'pipal, *Ficus religiosa*', Kolami ʒuvi id., Malayalam cuvann-āl '*Ficus infectoria*', Kannada juvvi mara id. , Telugu juvvi '*Ficus tsiela*', Parji ʒū meri, Gondi ʒū maṛa 'a species of *Ficus*' (Kannada mara, Parji meri, Gondi māṛa 'tree').

[55] ?? *bʳiˀrʳuwˀga '(a kind of) edible fruit' > **Kartv.** *brgen or *bergwen 'wild pear' or 'wild plum' > Georgian (dial.) b(e)rgena 'wild pear *Pyrus clicifolia*', Svan bargwen, bärgen 'wild plum' || **Indo-Eur.** *bʰrūg- 'fruit', 'to use (as fruit)' > Latin frūg- (nom. frūx, gen. frūgis) 'fruit', Umbrian accus. pl. frif, fri 'fruits', Latin fruor, frui, frūctus ~ fruitus sum v. 'have the benefit of', frūmentum 'corn', Oscan fruktatiuf (*frūgetātiōnis) 'fruit' ¦¦ Gothic brūkjan, Old High German brūhhan, Old Saxon brūkan, Anglo-Saxon brūcan 'make use of', German brauchen id., 'to need', Gothic brūks, Old High German brūhhi, Anglo-Saxon brȳce 'useful' || ?? **Ham.-Sem.**: Sem.: Arb birqūq- ~ burqūq- '*prunum, malum Armeniacum*' (unless ⇽ Late

Greek προκόκκιον ~ πρεκόκκιον ↚ Latin praecox) || ? (ambiguous) **Drav.** *piṙ̄ka (~ *piṙ̄la) 'green mango fruit' > Kannada piṛika, pṛīka, piṛka id., Pengo, Manda pṙ̄la id., Kui pṙ̀ia, Kuwi pṙ̀la 'unripe mango fruit' (unless akin to Sem. *ˈpiriɣ- 'fruit').

[56] ***ḴuSV** 'nut' > **Indo-Eur.** *kos(e)lo- 'hazel' > Latin corulus 'hazel-tree', colurnus 'made of hazel-wood' ¦¦ Celtic *koslo- 'hazel' > Gaulish koslo- id. (in proper names), Old Irish, Old Welsh coll 'hazel', Cornish col-widen id., Old Breton coll 'made of hazel-wood' ¦¦ Old High German hasal(a) > German Hasel, Anglo-Saxon hæsel > English hazel, Old Norse hasl 'hazel' ¦¦ ? Old Lithuanian kasulas 'Jägerspieß' (Pokorny: 'Jägerspieß' als 'Hasler') || **Altaic** *kʻusi 'nut' > Turkic *kʟʻusɪk 'nut' > Old Turkic qusɪq 'pine kernel', Altay, Quu-Kizhi, Qumanda quzuq, Khakas χuzuχ 'nut', Teleut, Quu-Kizhi, Sagay, Koibal Turkic quzuq 'cedar nut'; Turkic ↛ Persian qusūq 'pine kernel' ||| Mongolic *qusi-(gan) 'nut' > Class. Mong. qusi-gan (pl. qosi-d), Halha-Mong. xɣwra 'nut, walnut'; back formation: Mongolic *qusi 'cedar' > Class. Mong. qusi, Halha-Mong. xɣɯ id. ||| Tungusic *xusi-kta 'acorn, nut' > Ude uʰikta, Ulcha osta, Nanay χosaqta ~ osaqta 'acorn', Urmi Ewenki usikta 'oak' (← *'acorn'), Class. Manchu usiχa 'nut'.

[57] ***LVžV** (or ***LVwžV**) '(a kind of) nut', 'nut-tree\shrub' > **Kartvelian:** Georgian leža 'green walnut-shell' || **Ham.-Sem.:** Semitic *lūɓ|z or *lawɓ|z- 'almond tree' > Hebrew לוּז lūz, Canaanite ↛ Aramaic: Jewish Aramaic, Syriac luˈz-ā, Mandaic luza; Aramaic ↛ Arabic lawz-, Ge'ez lawz id., Harari lāz 'groundnut' || **Indo-Eur.** *lazd- 'hazel-bush' > Lithuanian lazdà ~ lazà 'stick, hazel-stick', lazdýnas 'hazel-bush', Latvian la(g)zda, lazds, lęgzda, lęgzds id., Prussian laxde 'hazel-bush' ¦¦ Armenian last 'raft, boat; wooden bedstead, wooden bank' ¦¦ Tosk Albanian lajˈthi 'hazelnut, hazel-bush'.

[58] ***buṭV** 'pistachio tree\nut' > **Ham.-Sem.:** Sem. *ˈbuṭʟuɻn|m- id. > Hebrew pl.בָּטְנִים bɔṭˈnīm '*Pistacia terebinthus* L.', Jewish Aramaic buṭˈn-ā, buṭˈm-ā, Syriac bɛṭm-əˈṯ-ā id., Arabic buṯm- 'terebinth tree', Ge'ez (<

Arabic?) bəṭm~būṭm 'terebinth tree', Akkadian buṭn-u 'terebinth tree\wood', buṭn-atu, buṭum-t-u, buṭṭutu 'pistachio tree\wood\nut' || **Altaic**: Turkic *buturɣāq > Old Turkic buturɣāq 'a thorn tree which is shaped like a pistachio tree and has thorns which catch the clothing', Siberian Tatar (Tar dial.) buturɣaq 'a tree which has split and is bound round to save it from collapse'; Turkic *bitrik 'pistachio nut' > Old Turkic bitrik id.

[59] *mar$_{ɬ}$ɣ$_{ɮ}$∇ '(mul-, black-) berries' > **Indo-Eur.** *mor- 'mulberry, blackberry' > Armenian mor 'blackberry', mori, moreni 'blackberry bush' ¦¦ Greek μόρον 'mulberry, blackberry' ¦¦ Latin mōrum id. ¦¦ Old Irish nom. pl. mera 'mulberry tree', Welsh merwydd(en) 'mulberry' || **Ham.-Sem.**: ¿ Egyptian mr 'mulberry tree (morus tree)' (according to Budge, supposedly attested in the Palermo Stele) ¶ The word is mentioned by Budge only and not confirmed by more reliable sources and is therefore questionable || **Kartv.** *marçqw- 'strawberry' > Georgian marçqv-, Svan basqi-, bäsq- id. ¶¶ This is a compound of *mar$_{ɬ}$ɣ$_{ɮ}$a + *ć∇mqU (a root represented by Kartv. *cimqw- 'strawberry [or bilberry]' > Georgian cmqva, Megrelian camʃwa, cimʃwa 'strawberry', Upper Bal Svan cinqa 'bilberry') || **Uralic**: Finno-Ugric *marɣa 'berries' > Finnish marja, Estonian mari id. ¦ proto-Lapp *mōrɣē id. > Norw. Lapp muorʻje, etc. ¦ Erzya & Moksha Mordvin maŕ 'berries' (in compounds) ¦ Highland Cheremis mör 'berry', Eastern Cheremis mör ≙ mörö 'garden strawberries' ¦¦ Ob-Ugric *m∇:r- > proto-Vogul *mārɬ > Middle Lozva Vogul moårɨ, North. Vogul må:ri 'stalk of berries', moriŋ/p pil 'bunchy berries'; proto-Ostyak *murəp 'bunch of berries' > Teryugan Ostyak murəp id., etc. || **Altaic** (according to A. Dybo) *merü > Turkic *m|bürü 'strawberry' > Quba Azeri müri 'strawberry' ¦¦ Korean mɜru, Southwestern Korean morä 'wild grapes'.

[60] *m^{r}o^{ʔ}$_{ɬ}$ɣ$_{ɮ}$ẑ∇ '(a kind of) berry' > **Uralic**: Finno-Ugric *moẑ∇ 'berries of some shrub' > Cheremis muδь ≙ moδo 'bilberries' ¦ Permian *moĺi 'berry, stone of a fruit' > Votyak мулъы muĺɨ 'stone of a fruit', Votyak (dial.) muĺɨ ≙ moĺɜ 'berry, nut', Ziryene ńur-moĺ 'cranberries' (ńur 'swamp'), moĺ 'button, stone of a fruit', Yazvian tʌr-ʻmuĺi 'cranberries' ¦¦

proto-Ostyak *wĭr-məĺ 'red-currant' (*wĭr 'blood') > Teryugan Ostyak wirməɬ, etc. ¦ Hungarian mëggy 'morello cherry (*Prunus cerasus*)' || **Altaic**: Tungusic *mile-kte ~ (?) *mol^{r}i^{1}-kte 'ashberry' > Zeya Ewenki molikta, Ewenki (dial.) miktɜ, Negidal miktan, Ulcha, Orok milɜktɜ, Orok miktɜ ~ mittɜ id. || ?? **Ham.-Sem.**: Sem. ¿*√mŝmŝ > Arabic mišmiš- [registered in Kamus] 'a kind of fruit' (Freytag: 'fructus nomen multum refrigerantis et debilitantis stomachum'), [Kamus] 'the plum ʔiǧāʂ-un', 'apricot' || ?? **Indo-Eur.** *māl- 'apple' > Latin mālum ¦¦ Greek μῆλον, Doric Greek μᾶλον ¦¦ Albanian mollë id. ◇ If the IE cognate is valid, the Nostr. reconstruction may be *moyə̂∇ (where *ɣ is responsible for the length of the IE vowel, but was lost due to a law ruling out *ɣ before sonants). The original *o may have been palatalized in Ob-Ugric, Hungarian (and Tungusic?) due to the influence of this *ɣ.

[61] ***ḴERV** 'fruit of a leguminous plant' or sim. > **Ham.-Sem.**: Sem. *ḳ∇r∇θ- > Syr ḳɛraṭ'ṭ-ā 'fruit of the locust or carob tree', Arb قَرْظ qaraʂ- 'fruit of acacia' ||| East Chadic: Kwang kìrī, Kera kĩrí, Jegu gír(k) 'bean(s)' || **Indo-Eur.** *ḱi̯ḗr- 'pea(s)' > Armenian siseṙn 'chick-pea' ¦¦ Greek κριός id. ¦¦ L cicer 'chick-pea' ◇ Sem. *-θ- may go back to the second part of a nominal compound.

[62] ***m^{r}u^{1}rḳ∇(-ŋḴ∇)** 'root, root-crops, edible roots', (→ ʔ) 'sinew' > **Kartv.** *°murḳ- > Georgian murḳ-i 'stump of cabbage' || **Indo-Eur.** *mr̥ḱ- (~ *br̥ḱ-) 'edible roots, carrot' > Anglo-Saxon more, moru 'edible root, carrot, parsnip', Old High German mor(a)ha, German Mohrrübe, Möhre 'carrot' ¦¦ proto-Slavic *mьrkɨ / *mьrkьv- 'carrot' > Serbo-Croatian mr̂kva, Slovene mŕkev, mr̃kva, Old Czech mrkev, Czech mrkva, Old Russian morkovь, morkva, Russian мор'ковь ¦ ? Baltic *burkū > Lithuanian burkū́nas id., Latvian bur̃kans id., *'Aetusa cynapium'* ¦¦ Greek [Hesychius] βράκανα 'wild vegetables' || **Ham.-Sem.**: East Cushitic *murḳ- 'tendon, nerve' > Oromo morg-aya id., Konso murq-a 'tip of the nose', Gidole morḳ-a 'bone of nose, kneecap, soft part of ensete', Somali muruq- 'muscle', Burji morgánka míč̣a 'ankle', Yaku morž-iʔ 'sinew of neck' || **Drav.** *murV̄ŋk- > Tamil muruṉkaiy *'Moringa*

pterygosperma, Indian horse-radish tree', Kannada nugga, nuggi, Tulu nurige, nurge, Telugu munaga, Parji muŋga, mulŋga, Gondi (dial.) mulgē, mungē id. Konda muŋna maram, muluŋa mara id. (mara, maram 'tree'), Malayalam muriŋŋa '*Hyperanthera moringa*, Indian horse-radish', Kurukh muŋgā 'a shrub, the fruits & leaves of which are eaten as curry'; Drav. ↛ Old Indian muraŋgi-, muruŋgi- '*Moringa pterygosperma*' || **Altaic**: Tungusic *°mu^{r}nŋ^{1}i 'tendon' > Ewenki muŋi ≙ mɜ̄nŋī 'tendon (at the end of a muscle), muscle' ◇ The same Nostr. word is used both for the root and the sinew, which is explained by their common technical functioning as ropes.

5. Food

Many of the items of the Nostratic menu have been already mentioned in different contexts, e.g. the cereals they harvested (nos. [15]–[18] and [53]). They knew how to *pound* (*mol|l∇) grains and to *bake [on hot stones]* (*ʔäPHi) a sort of flat unleavened *bread* (*qUb|pź∇). They ate *meat* (*$ʔ^{1}$omśa) of several animals — mainly artiodactyls (see above nos. [5], [36]–[47], [49]) and knew how to appreciate the taste of *marrow and brain* (*ʔayŋo), *liver* (*mag$_{l}$i$_{j}$za), other *pluck* (*ɋ^{r}u^{1}ʒ∇) and *soft parts of the animal's body* (*ń^{r}a^{1}Ḳ̣U). They ate *eggs* (*muña[-t|d∇], ?*ʔ^{r}a|o^{1}wh|χi) and several kinds of *fish* (*Ḳ̣o1∇, *doTgiHU, *mEn|ñi). One cannot be sure that they ate *caviar*, but certainly *hard roe* (*ṭ̣üR∇, *^{r}k̓^{1}ür$_{l}$w$_{j}$∇ or *^{r}k̓^{1}ur$_{l}$w$_{j}$E) was known to them. They ate *root-crops* (*m^{r}u^{1}rḳ̣∇[-ŋḲ̣∇] — see above [62]), *nuts* (*Ḳ̣uS∇, *L∇$_{l}$w$_{j}$ǯ∇ 'nuts', *buṭ∇ 'pistachio' — see [56] — [58]), *berries* (*mar$_{l}$y$_{j}$∇, *mo$_{l}$y$_{j}$ĉ∇ — see [59]–[60]), enjoyed the taste of *figs* (*ʔibrE [1]) and other *fruit* (??*b^{r}i^{1}ŕ^{r}uw^{1}ɋa [55]). Their 'cuisine nostratique' included *tasty beverage* (*mayʒ̂∇ [21]) and *honey* (*madu).

[63] *mol|l∇ 'to pound, gnaw/smash into pieces' > **Indo-Eur.** *mel-, *melh- 'to grind, pound' > Hittite mall(a)- v. mill, grind' ||| Armenian malem 'I break into pieces' ¦¦ Greek μύλη 'mill' ¦¦ Albanian mjell 'flour', bluanj (< *mlā-) v. 'grind' ¦¦ Latin mol-ō, -ĕre v. 'grind' ¦¦ Old Irish melim 'I grind' ¦¦ Gothic, Old High German malan, German mahlen, Old Norse mala 'to mill', Old High German muljan 'to break into small pieces' ¦¦ Lithuanian málti 'to mill' ¦ Slavic *mel-ti 'to grind, mill' > Old

Church Slavonic **млѣти** mlěti (1 sg. pres. meljǫ), Bulgarian ˈмеля, Serbo-Croatian mlȅti / mȅljem, Slovene mlẹ́ti, Czech mlẹ́ti ~ mlíti, Polish mleć / mielę, Old Russian **молоти**, Russian моˈлоть / меˈлю ¦¦ Tocharian A malywät 'you (sg.) are pressing', Tocharian B melye 'they trample' ¦¦ ? Old Indian mr̥̩ṇāti 'crushes, grinds' (coalescence with Indo-Eur. *mer- 'to rub') || **Ham.-Sem.**: Sem. *✓mll 'crush, squeeze (e.g. for husking the grain)' > Middle Hebrew, Jewish Aramaic, Mandaic ✓mll v. 'crush, squeeze, rub ears for husking the grain', Biblical Hebrew מְלִילָה məlīˈlā, Jewish Aramaic מְלִילְתָא məlīlaˈṯ-ā 'Reibähren (noch milchige Ähren, deren Körner man ausreibt)', Middle Hebrew מְלִילָה məlīˈlā 'ripe ear', Arabic ✓mll (II form) 'presser, activer' || **Uralic** *mol|l∇ 'to crumble, break into pieces', 'a crumble' > proto-Lapp *mōl∇ > Norw. Lapp moallo 'crumb, little, bit, piece, morsel', moallâni- ~ mǫllâni- v. intr. 'crumble away' ||| Samoyedic *mъl∇- v. 'break' > Tundra Nenets **маля-** maʃa- ~ **малье-** v. 'break, smash'. Taz Sölqup mala- v. 'gnaw', Tïm Sölqup 1 sg. aor. malāab id., Kamassian boł·daĺam ~ buł·daĺam v. tr. 'break', Koibal **блаламъ** 'I gnaw', Mator **бальямъ** id. || **Altaic** *möl∇ > Mongolic *mölʒi- (< *möl-di-) 'to gnaw into pieces' > Middle Moghol mölǯi-, Class. Mong. mölʒi-, Halha mölǯi-, Kalmuck mölǯĭ- 'to gnaw'.

[64] ***ʔäPHi** 'to bake, prepare food on hot stones' > **Ham.-Sem.**: Sem. *✓ʔpy v. 'bake' > Ugaritic, Old Aramaic ✓ʔpy|w, Hebrew ✓ʔpy|w (perfect אָפָה ʔāˈp̄ā) v. 'bake', Phoenician, Official Aramaic ✓ʔpy id. (and/or 'cook'), Jewish Aramaic אפי ✓ʔpy (pf. אֲפִי ~ אֲפֵי ʔaˈp̄ē) v. 'bake', Syriac ✓ʔpʔ (perfectʔĕˈp̄ā) v. 'bake, cook', Arabic مِيفًى mīfā-n 'bake-oven', Akkadian ✓ʔpy/w (inf. epû) v. 'bake' ||| Chadic: West Chadic: Pero ápò v. 'bake' || ? **Indo-Eur.**: *ʔ|HepH- (unless it is *sepH-) v. 'cook' > Armenian epʰe-m id. ¦¦ Greek ἕψω id. (so-present), part. ἑφθός 'baked' || **Altaic**: Turkic *äpʿ- v. 'bake (?)' in Old Turkic äp-mäk ~ äpäk 'bread', Azeri äppäk, (dial.) äpmäk id., Volga Tatar äpäy id. || **Drav.** *avi- v. 'be boiled, cooked' > Tamil avi id., avay v. 'cook, boil', Malayalam aviyuka v. 'boil on fire, be digested'.

[65] *qUbźV (< *qUpźV?) 'food made of ground cereals', 'flour' (> 'bread') > **Kartvelian** *qweza- 'loaf' > Old Georgian queza-y 'loaf of bread', Megrelian χozo 'oval loaf of cooked dough', χozo-ḳwari 'ceremonial cone-formed bread baked at the first Monday of Lent (with a wooden stick in it)' (Megrelian ḳwari is 'small loaf of bread') || **Ham.-Sem.**: Sem. *χubz- 'bread' > Arabic χubz- 'bread', χubzat- 'a bread baked in ashes', ✓χbz (past χabaza, present-future -χbiz-) v. 'make bread', Eastern Jibbali E χ̄əz v. 'bake' (*-b- > zero is regular), Mehri, Harsusi ✓χbz id., Ge'ez ✓χbz id. 'bake', χabz 'bread', χabast (pl. χabāwaz) 'bread' || ? **Altaic**: Tungusic *upa 'flour; flat bread' > Solon ʊʁõ: 'bread', Negidal, Naikhin Nanay opa, Ude, Bikin Nanay opa ~ ufa, Kur-Urmi Nanay ofa, Ude ufa, Ulcha upa 'flour', Orochi upa id., 'flat bread', Orok upa 'flour, flat bread, bread', Class. Manchu ufa 'wheat-flour, rice-flour', Sibe Manchu ʔufa· 'flour, meal', Jurchen ufa 'flour' ¶¶ The Tungusic cognate is valid only if there is a way of explaining the loss of *ź in Tungusic (or the change *-bź- > Tungusic *-p).

[66] *ʔ̍omśa 'meat' > **Uralic** *omśa 'flesh, meat' > proto-Lappish *ōńćē 'flesh' > Norw. Lapp oaǯ'ǯe, Kildin Lapp v̆ʊ̯ʒń:č, Ter Lapp v̆ɨ̯ʒń:če id. ||| Samoyedic *ъmså 'meat' > Tundra Nenets ӈамзa, Obdorsk dial. ŋamcă, Forest Nenets ŋams·ă̆a, Nganasan ŋ3msu, Somatu Enets ućа, Bay Nenets ossa 'meat', Taigi апса 'flesh\meat', Mator апса id., 'body', Taz Sölqup apsɨ 'food' || **Ham.-Sem.**: ? Sem.: Arabic ʔāmiǧ-, ʔamīǧ- 'marinaded raw meat; veal jelly' ¶ The emphatization of the final consonant is not yet clear ||| Egyptian sms 'piece of beef' (Illich-Svitych: partial reduplication of *ʒms?) || **Indo-Eur.** *mēms- 'meat' (< **ʔmēms- [reduplicated stem]) > Old Indian māṁ'sa-, 'māṣ 'meat' ¦¦ Armenian mis id. ¦¦ Albanian (dial.) mish id. ¦¦ Gothic mimz id. ¦¦ Prussian mensā, Low Lithuanian meisa (Fraenkel: < *mensā), Latvian mìesa ¦ Slavic *męso > Old Church Slavonic мѧсо męso, Serbo-Croatian mêso, Polish mięso, Russian 'мясо id. ¦¦ Latin membrum 'limb' (< *mēms-ro-) ¦¦ Old Irish mír 'piece' (← 'piece of meat') (< *mēms-ro-) ¶ The loss of the laryngeal *ʔ in the initial clusters [*ʔ + consonant] is regular (e.g., *ʔs- > *s in *es-ti 'est' — *s-onti 'sunt').

[67] *ɡ̊ˈuˈʒ∇ 'intestines, pluck (as food)' > **Kartvelian** *ɡ̊wiǯ̬- 'liver' > Old Georgian ɣwiʒl-, Georgian ɣviʒl-, Megrelian *ɡ̊viži̯l- ⊳ Georgian ɡ̊viži̯l- 'of dark-violet colour', Megrelian i-ɡ̊vižin-an-s 'has unhealthy yellow complexion' ('выглядит желто, болезненно'), Svan ɡ̊wiže, ɡ̊uže 'liver' || **Indo-European** *kewˢ-/kūˢ- ≈ 'intestines, abdomen' > Old Indian koṣṭha- 'abdomen' ¦¦ Greek κύστις, -εως 'bladder' ¦¦ Welsh cwthr 'anus, rectum' (< kusdʰro-) ¦¦ Slavic *kɨšь-ka 'gut' > Russian кишˈка, Ukrainian ˈкишка, Polish kiszka 'gut' || **Altaic**: Tungusic *ˌɤ̯ˌu̯ja- > Okhotsk Lamut u̯ja- v. 'disembowel (a bear)', u̯jamʧn, Ola Lamut u̯jɨmʦn, Negidal u̯ddo-nn 'pluck of a bear' || ?ψ **Dravidian** *kuṯ- 'intestines' > Tamil kuṭar, kuṭal 'bowels, intestines, entrails', Malayalam kuṭar, kuṭal 'bowels', Kota koṙ̀ṅ, Toda kwɨṙ 'small intestine', Gondi kuɳɖalī 'a stomach of ruminants'.

[68] *ʔayŋo 'marrow, brain, soft fat of animals' ('to smear, anoint') > ?? **Indo-Eur.**: Narrow Indo-European *ongʷ- 'to smear', *ongʷ-en-~*ŋ̊gʷ-en- 'fat, grease' > Old Indian añj-, aˈnakti (3 pl. añˈjanti, part. pass. akˈta) v. 'smear, anoint', ˈājyam 'melted or clarified butter (used for oblations, for pouring into the holy fire at the sacrifice, and for anointing anything sacrificed or offered)' (< ā + ajya < *ngʷyo-) ¦¦ Armenian aucanem 'I smear' ¦¦ Latin unguō / unctus v. 'smear', Umbrian umtu 'unguito' ¦¦ Prussian anctan, ancte 'butter' || **Ham.-Sem.**: Semitic: Ge'ez ʔangʷaʕ 'marrow, the soft fat of animals', Tigre ʔəngəʕo, Tigray ʔangʷəʕ, Amharic angʷa 'marrow' ||| ? Cushitic *ħangʷl- 'brain' > East Cushitic *ħangul- 'brain' > Saho ħangal, pl. ħangul id., Afar ħángal 'brains', Borana Oromo ɛngu~ɛngō id., as well as probably Dahalo ʕàni 'head' ¦ Agaw ⊳ Amharic angol 'brains' and Tigre ħangal ħangɐl (pl. ħanāgəl ħanagəl) ⊳ Bilin hangʷel (pl. hanāgʷəl) 'brains'; Awngi angʷal id. may be either a back borrowing from Ethiosemitic or an inherited Cushitic word ¦ ? Cushitic ⊳ Mbugu angálo ||| Omotic: East Ometo: Kachama ənḳā 'head' ||| Central Chadic: Chibak ʔáŋgàrà, Margi aŋgada 'brain', Mboku ānga, Bana yánga 'head' || **Uralic** *ayŋe (or *ayŋo, as proposed by Collinder) > Finnish aivo(t) 'brain, temple, temporal (bone)', Estonian aju 'brain', proto-Lappish *vōjŋə 'brain' > Norw. Lapp vuoiŋâš-: pl. vuoiˈgŋâšâk, Lule-Lapp vuoiŋam ~

ᴠuoiˈɳam ¦ proto-Mordvin *oyɤə > Moksha-Mordvin уй uy 'marrow, brain' ¦¦ ? Hungarian agy 'brain, marrow' || ? **Altaic**: Turkic *äŋ 'cheek' > Old Turkic äŋ id., Old Osman eŋ id., Azeri äŋg 'the sides of the lower jaw', etc.

[69] *mag̡i̯za 'liver' > **Ham.-Sem.**: Egyptian myz.t 'liver (?)' > Demotic Egyptian mys 'liver' > Old Coptic ⲙⲁⲟⲩⲥ maus id. ||| North Omotic *mayz- 'liver' > Bench mȧy 'heart, liver', She may 'liver', Chara mayya, Badditu, Kachama mayye, Gidicho māyye, Ganjula, Zayse, Zergulla maye, Male māyzi, mayz, Basketo māyɜz, Doka mayz 'liver' ¶¶ The origin of *y instead of the expected guttural is not clear || **Uralic** *maksa 'liver' > Finnish maksa, Estonian maks ¦ proto-Lappish *mōksē > South. Lapp müöksie, Ume-Lapp müeksē, Vefsen Lapp mů̈ökʻsi ¦ Erzya-Mordvin makso, Moksha-Mordvin макса maksə ¦ proto-Cheremis *moks > Cheremis: Lowland and Highland Cheremis мокш mokš, Malmïzh Cheremis moks ¦ proto-Permian *musk- > Ziryene mus / musk-, Votyak мыс mus ¦¦ proto-Ob-Ugric *mɨ̄ɤəθ > proto-Vogul *mɨ̄yət / mə̄yt- > Tavda Vogul mayət, Northern Vogul māyət; proto-Ostyak *muɤəɬ > Vakh Ostyak muɤəl, etc.¦ Hungarian máj id. ||| Samoyedic *mɨtъ id. > Tundra Nenets мыд, Obdorsk dial. mɨ̄δ ~ mūδ, Forest Nenets mɨ̊tˑ; Nganasan ˈmitə; Enets muro ~ mudo; Taz Sölqup mɨ̄tɨ, Tïm Sölqup mɨ̊ːd̯; Kamassian mɨtˑ, Koibal мёттъ.

[70] *ńˈaˀĶU 'soft parts of the animal's body (liver, marrow, suet)' > **Ham.-Sem.**: Sem. *√nḳy/w > Arabic niqy- 'marrow', naqw- 'bone of the arm, one full of marrow', √nqw/y v. 'extract marow from a bone' || **Indo-Eur.** *yekʷ-r̥(t-) / gen. *yekʷ-ˈn-es 'liver' > Old Indian ˈyakr̥t, gen. yakˈnaḥ, Persian ǰigar ¦¦ Greek ἧπαρ / -ατος ¦¦ Latin iecur / iecinoris ¦¦ Baltic *yeknā > Lithuanian (j)ẽknos, (j)ãknos, Old Lith. jeknas, Latvian pl. aknas, (dial.) jẹknas, Prussian iagno || **Uralic**: Finno-Ugric *°ńok|ɤ|wˇ∇(-ɜ̂∇) > Ob-Ugric *ńōɤəɜ̂ 'meat' > proto-Vogul *ńə̆yəɪ́- > Tavda Vogul ńäwɪ́, Sosva Vogul ńɔ̄wɪ́, etc.; proto-Ostyak *ńoɣɨ id. > Vakh Ostyak ńoɣɨ, etc. || **Altaic**: Turkic *yakrɨ 'suet, fat (of an animal)' > Old Turkic yaqrɨ 'fat, suet' (meaning influenced by Turkic yāɣ 'fat'), Old Uighur yaqrɨ ašɨɣlar 'fat\suet eaters'.

[71] ***muńa(-t|dV)** 'egg' > **Uralic** *muńa 'egg, testicle' > Finnish, Estonian muna id. ¦ proto-Lappish *monē > Norw. Lapp mânne 'egg' ¦ Erzya & Moksha Mordvin mona 'testicle' ¦ Highland Cheremis мыны mənə, Lowland Cheremis muno 'egg', Birsk Cheremis muno id., 'testicle' ¦¦ Ob-Ugric *mōń 'testicle' > proto-Vogul *măn id. > Tavda & Lower Lozva Vogul man id.; proto-Ostyak *mońʹ 'penis' > Vakh Ostyak mońʹ id. ¦ Hungarian (dial.) mony 'egg, testicle' ||| Samoyedic *mъnå 'egg' > Nganasan mɜnu, Enets mona, Kamassian mun·əi̯ ~ mun·ui̯ 'egg', Koibal муны 'egg', Taz Sölqup manɨ 'penis' || **Ham.-Sem.**: Chadic: possibly Musgu muŋ 'testicles' (after Rohlf's record of 1856), ? Girvidig Musgu mōhom id. || **Drav.** *muṅṭ- ~ *muṭṭ- 'egg' > Tamil muṇṭai ~ muṭṭai 'egg', Malayalam muṭṭa, moṭṭa, Kota moṭ, Toda muṭy, Kannada, Tulu moṭṭe id., Kodagu muṭṭe id., 'testis' || **Indo-Eur.** *°mond˪ʰ˩- > Slavic *mǫd-o 'testicle' (dual *mǫd-ě) > Church Slavonic мѫдо mǫdo, Bulgarian мѫ'до (new orthography мъдо), Serbo-Croatian múdo, Slovene módo, Old Czech múd, Czech moud, Old Polish mądo, mędo, Polish arch. mądo, Old Russian мꙋдо mudo (dual мꙋдѣ mudě), Russian (dial.) му'до (old dual му'де), Ukrainian 'мудо id.

[72] ? ***ʔ⌈a|o⌉ħ|χ i** or ***ʔuħ|χ i** 'egg' (or 'white of egg') > **Ham.-Sem.**: Sem. *°ʔawħ- > Syro-Lebanese Arabic أوّح ʔawħ- ~ آح ʔāħ- 'white of egg' || **Indo-Eur.**: Narrow IE *ou̯(y)o- 'egg' > Greek: Attic ᾠόν (< *ōu̯y-om), Aeolic ὤιον, Doric ὤεον 'egg' ¦¦ ? Old Persian xāya 'egg', ? Avestan ap-āvaya- 'entmannt' (if < *apa-āvaya- 'without testicles') ¦¦ Welsh wy, Old Cornish uy 'egg' ¦¦ Armenian ǳu (gen. ǳuoy) 'egg' ¦¦ Latin ōvum ¦¦ proto-Germanic *ayya-m > Gothic *addya (reconstructible from Crimean Gothic ada), Old High German ei, German Ei, Old Scandinavian egg (whence English egg) ¦¦ Slavic *aje id., (diminutive) *ajьce id. > Serbo-Croatian jáje, Low Lusatian jajo, Polish jaje, Ukrainian (dial.) айо 'egg'; Old Church Slavonic аицє ajьce, Bulgarian яй'це, (dial.) ай'це, Polish (arch. and dial.) jajce, jajco, Old Russian ıаицє jaice id., Serbo-Croatian jájce id. (dimin.), Slovene jájce, Czech vejce, Russian яй'цо 'egg, testiculum' || **Altaic**: Old Japanese u 'egg' (Starostin, pers. comm., 1976).

[73] ***Ḳol▽** '(large) fish' > **Ham.–Sem.**: East Cushitic: Afar kúllum, Somali kallūn 'fish', kallūm- 'to catch fish' ||| Chadic: Hausa kúlmā́ '(a kind of) large fish' ||| ? Sem.: Jibbali (according to B. Thomas) kāl, Mehri (Thomas) kell 'whale' || **Uralic** *kala 'fish' > Finnish, Estonian kala ¦ proto-Lappish *kōlē > Norw. Lapp guolle ¦ Erzya & Moksha Mordvin kal ¦ Cheremis kol ¦¦ Ob-Ugric *kūl > proto-Vogul *kūl > Tavda Vogul kōl, Northern Vogul χūl; proto-Ostyak *kul > Vakh Ostyak kul, etc. ¦ Hungarian hal ||| Samoyedic *kåläˊ > Tundra Nenets халя, Obdorsk dial. χaĺ·e, Forest Nenets kāɬ:a͡ā, Nganasan kolɨ, Somatu Enets kaɬe, Bay Enets kare, Taz Sölqup qɜlɨ, Kamassian kʻōɬă, Koibal кола, Mator келе || **Altaic** *kʻol▽ 'fish' > Mong. *qoli-sun 'fish-skin' > Class. Mong. qolisun, Halha холис(он) ||| Tungusic *xol-sa 'fish' > Ewenki ollo, Lamut olrъ, Negidal olo, Orochi okto, Ude oloʰo, Ulcha χolto(n-), Nanay χolto |||| [2] (a loanword?) Mong. *qalimu 'whale' > Class. Mong. qalimu, Halha халим 'whale'; Mong. -ɒ→ (possibly) Tungusic *kalima 'whale' > Ewenki kalim 'whale', Ayan Ewenki kalim id., 'ходовая рыба (shoals of fish moving into the rivers for spawning and caught by fishers)', Lamut qalɪm, Negidal kalɪm, Orochi kalima ~ kālma, Ude kalima, Ulcha qalma, Orok, Nanay qalɪma, Class. Manchu qalimu 'whale' || **IE** *kʷo|al- '(a kind of) large fish' > Khotan Saka, Young Avestan kara, Sogdian krw kpy 'a monster fish' ¦¦ Germanic *xʷalaz ~ *xʷaliz 'whale' > Old Norse hvalr, Anglo-Saxon hwæl, English whale, Old High German wal, German Wal-fisch; Old High German *hʷalis > Middle High German węls > German Wels 'sheat-fish, Silurus', Germanic *xʷalirōn id. > Old High German hwelira ¦¦ Prussian kalis 'sheat-fish' ¦¦¦ ?? A possible compound *Hs-kʷal- may be represented by Greek [Hesychius] ϗσπαλος 'fish' and Latin squalus '(a kind of) large fish, Meersaugfisch?' || **Drav.** *koll- '(a kind of) fish' > Malayalam kolli, Tulu koleji id. ◇ The vowel *a (for the expected *o) in Uralic is obscure.

[74] ***doTgiHU** 'fish' > **Indo-Eur.**: NaIE *dʰg̑ʰū- 'fish' > Greek ὀχθῦς (< *g̑ʰdʰū- — metathesis from *dʰg̑ʰū-) ¦¦ Lithuanian žuvìs, Latvian zivs, (dial.) zuvs, with a *k-suffix: Prussian suckis, acc. pl. suckans ¦¦ Armenian ձուկն ¶ According to many scholars, the initial ὀ- in ὀχθῦς is of

prostetic origin; according to Frisk, Armenian -kn is a suffix || **Ham.-Sem.**: Sem. *ˈdag- or *daˈwag- 'fish' > Hebrew דָּג ˈdāg, Ugaritic dg 'fish'; Middle Hebrew -dūg- v. 'fish', Biblical Hebrew דָּיָג dawˈwāg 'fisher' || **Uralic** *totke 'a fish of the genus *Cyprinus*' > Estonian tõtkes 'Schleie (линь), *Cyprinus tinca*', Finnish totke (in the toponym Totkijärvi) ¦ Erzya Mordvin tutko, Moksha Mordvin тутка tutka '*Cyprinus tinca*' ¦ Highland Cheremis tatь, Malmyzh Cheremis toto id. ¦¦ Tavda Vogul tåχt id. ≙ takt-kōl id. or '*Tinca vulgaris*' ¦ Hungarian tat-hal 'a worthless fish; *Cyprinus tinca, Tinca vulgaris*' ||| Samoyedic: Taz Sölqup tutɨ '*Cyprinus carassius*', Turukhan Sölqup tūtɨ, Ketj Sölqup tutto, Tïm Sölqup tutä id. || **Altaic** *dŏg|ki 'fish' > Tungusic *ʒog|gi 'a species of fish (*Salmo lenoc* or sim.)' > Nanay ǯoɪ, Ude ǯüi-so, Negidal joyo '*Salmo lenoc*', Negidal joyolan 'golyan (sp. of fish)' ||| Mong. *ʒiga-sun 'fish' > Middle Mongolian ǯigasun, Class. Mong. ʒigasun, Halha-Mong. ʒagas, Kalmuck zaɣəsŋ, Dongxiang ǯaɣasun, Dagur ǯause, Shira-Yugur ǯaɣasən, Monguor ǯ̣jäg̣as ||| proto-Japanese *(d)íwuá 'fish' > Old Japanese iwo, Japanese dialects: Tokyo ù̀o, Kagoshima íwo, Ryukyu dialects: Shuri íyu, Nakasuji ʔyú, Hateruma yú, Yonakuni ì̀yú.

[75] *mEn|ńi '(a kind of) fish' > **Indo-Eur.** *m̥ni- '(a kind of) fish' > Greek μαίνη 'a small sea-fish, which, like our herring, was salted' (↔ Latin maena id.) ↔ μαινίς 'sprat' ¦¦ Slavic *mьnь 'burbot, Lota lota' > Serbo-Croatian (dial.) mȁnj, Czech meň, Old Russian **мєNь** menь, Russian мень id. ¦ ?? Baltic (der.): Lithuanian mė́nkė 'cod' (unless a fem. form of the adj. meñkas 'poor, small'), Latvian mę̃ņca, meñce 'cod' ¦¦ ? Gmc (der.): Old High German muniwa, Anglo-Saxon myne > English minnow '*Phoxinus*' || **Drav.** *mīn̪- 'fish' > Tamil mīṉ, Malayalam, Kannada mīn, Kota, Toda, Gadba, Gondi, Konda mīn, Kodagu miˑnī, Tulu mīnь, Telugu mīnu, Parji mīni, Pengo, Manda min, Kui, Kuwi mīnu, Malto mínu; Drav. ↔ Old Indian mīna- id.|| ?? **Uralic**: Finno-Ugric *mäNV > Skolt Lapp: Paatsjöki dial. māńńiˑ, Suonikylä dial. māńe'k '*Coregonus, lavaretus* (big white-fish)'.

[76] *p|p̣ayV ‘(a kind of) fish’ > ? **Indo-Eur.** *peysk(o)-/*pisk- ‘fish’ > Latin piscis ¦¦ Gothic fisks, Old Norse fiskr, Old High German, Anglo-Saxon fisc, German Fisch, English fish ¦¦ Old Irish ī̆asc (< *peyskos) (/ gen. ēisc) ‘fish’ ¦¦ Slavic *pisk-arjь~*pisk-orjь > Russian пи'скарь (modern orthography: пескарь) ‘gudgeon’, Serbo-Croatian pȉskor ‘*muræna*’, Slovene pišku̯r ‘lampern (*Lampetra*)’, Czech piskoř, Polish piskorz, High Lusatian piskor ‘loach (*Misgurnus*)’ || ? **Uralic** *payV ‘(a species of) fish’ > ? Votyak paya ‘bream (*Abramis*)’ ¦¦ ? Tavda Vogul pa̯il, pa̯yil ‘*Carassius*’ ||| ? Samoyedic: Nen paja, paiha ‘*Salmo peljet* (a fish)’, Tundra Nenets pāуха̄ ‘сырок, пелядь (a kind of *Salmonidae*)’, Bay Enets faeha ‘*Salmo peljet*’, Nganasan faˀu̇ka ‘Muksun’ (a fish) || **Drav.** *payy- ‘(a kind of) fish’ > Malayalam payyatti ‘a fish’, Tulu paiyyæ ‘a kind of fish’.

[77] *t̤üRV ‘hard-roe’ > **Uralic** *°t'ü'rV > Samoyedic *tirämä ~ *türämä ‘hard-roe’ > Tundra Nenets тиребя, Forest Nenets ťiɬɬīmḿēɛ̄, Nganasan ťi'rimi, čirimi, Somatu Enets ťirê, Bay Enets ťirê, čirɛ, čiŕi, Taz Sölqup tɨr, Tïm Sölqup tē'reˈb_, Kamassian t'u̇r·mɛ, Koibal турмэ, Taigi türmjä, Mator türma, турмэ, Karagas du̇́rmjä || **Altaic** *t'üR'i' ‘hard-roe’ > Mong. *türi-sün > Class. Mong. türi-sün, Halha тур, Kalmuck türsŋ̥, Buryat турьһэ(н) id. ||| Tungusic *tiu̯re-kse id. > Ewenki tirā-ksə ≙ tirākšə ≙ tirāhə, Solon, Ulcha tursə, ? Class. Manchu cerguwe ~ cerhuwe.

[78] *'k̤'ür˽w˽V or *'k̤'ur˽w˽E ‘hard roe, spawn’ > **Indo-Eur.** *krek- ‘fish eggs, frog spawn’ > Old Norse hrogn, Old High German (h)rogan, rogen, German Rogen, Middle English row, English roe ¦¦ Lithuanian kurkulaĩ, Latvian kur̂kulis ‘frog spawn’ ¦¦ Slavic *krekъ ~ *krěkъ ~ *krẽkъ ‘frog spawn’ > Slovene krék, žabo-kréčina, krâk, Old Polish krzek, Russian (dial.) крек, крёк, кряк id.; in Slavic there is contamination with the onomatopoetic imitation of croaking, whence the unexpected variations in the form || **Altaic**: Azeri kürü ‘hard-roe’ ||| Tungusic *xu̯rbe ‘to spawn’ > Ewenki irbə ‘spawning. spawn’, Ulcha xulbi-, Nanay xurbə- ≙ xurbu- v. ‘spawn’ || ? **Kartv.**: Georgian kvirita ‘hard roe,

soft roe', kviriti 'spawn of fish/frogs' ¶ The lack of glottality in the initial consonant is irregular.

[79] ***madu** 'honey' > **Indo-Eur.** *medʰu- 'honey' > Old Indian madhu- 'honey, mead', Avestan maδu 'wine made of berries' ¦¦ Greek μέθυ 'wine' ¦¦ Old Irish mid (gen. medo), Cornish medd, Breton mez 'mead' ¦¦ Old Norse mjǫðr, Anglo-Saxon meodo, English mead, Old High German metu, German Met 'mead' ¦¦ Lithuanian medùs, Prussian meddo 'honey', Latvian mẹdus id., 'mead' ¦ Slavic *medъ 'honey' > Old Church Slavonic medъ, Bulgarian, Ukrainian мед, Czech, Slovak med id., Serbo-Croatian mẽd, Polish miód, R мёд id., 'mead'; the ancient root-final *u is preserved as *v in derived and compound words (as Church Slavonic medvьnъ, Russian мед'вяный 'made of honey', Slavic *medvědь 'bear' ['honey-eater'], etc.) ¦¦ Tocharian B mit 'honey' || **Drav.** *maṯṯ◦ 'honey, sweetness' > Tamil maṭṭu 'honey, toddy, sweet juice', Malayalam maṭu 'sweetness, honey', maṭṭu 'nectar', Tulu miṭṭi 'sweetness' || **Ham.-Sem.**: East Chadic: Mokilko máddé 'bee, honey' ||| Omotic *mat/ṭ/Ḉ- 'bee, honey' > Shinasha maḉ'ḉa 'honey', Kaffa māṭo 'bee', Mocha maṭi 'bee, wasp', Anfilla maḉḉo ~ maṣṣo, Zayse, Dache maḉḉ 'bee', Gamu macci, Wolayta matta, Chara meca id.

6. Technological activities

The information provided by the language is both rich and very poor. On one hand, we know two dozens of words for 'cutting', but on the other hand, we have no idea about the original semantic difference between them. The precious information about different ways, directions and aims of cutting has not been preserved by the language. There are many words for 'bending', 'twisting', 'boring/drilling', 'barking/flaying/peeling', 'rubbing', 'scratching', etc., but the specific meaning of each one has been lost. Therefore I do not see any use of quoting the dictionary entries for all of those words (which would have taken as much space as the rest of this book).

What is more important is the general impression corcerning the industrial activities of the proto-Nostratic epoch. From popular literature on the 'Stone Age' archæology the unprofessional reader (like myself) may draw a conclusion that the main materials of industry of the palaeo**lith**ic,

mesolithic and neolithic were **stones**. But in the light of the linguistic data the situation looks different. Alongside with *flints* (*č̣ˈü¹rV, ?*buRV) and other *stones* (*ti|eˌʔaˌío, *kiwˌVˌħE), no less important were other materials:

(a) *wood* (*boruʕ|ɣV 'trunk', 'log', *ć̣U]V 'stalk, stick', *ķ̣oǯʕV 'tree trunk', *kaȟV(-bV) 'stalk, trunk', 'log'), *poles* (*ǯuRV 'pole, long piece of wood')

(b) *rods* (see above *ķ̣adV 'to wicker, wattle', *ķ̣adV-LV 'wattle-fence'[22]),

(c) *sinew, tendons* (*ʒ̂irɣu|ü, cf. above *ʕ|ɣaŕḴˈu¹ [25], *yaŋˌyˌV [26], *ńoɣ|ʕ1E [28]),

(d) *thorns* (*ʔeẑekU 'thorn, hook'),

(e) *teeth, claws* used as *hooks* (*ķˈa¹kˌwˌV),

(f) *bark* (*toŕV, *Ḳaˈpʔ|ʕ¹E¹, *Ḳ̣ayerV), *leather and hides* (*ṭoˌwˌg̣a, *ṭalˌUˌya and others, as well as words for *skin or bark*, such as *Ḳ̣aíˈü¹, *ķ̣oRuṗV and *Ḳ̣oẑV). There is a word for *piece of leather, used especially as footwear* (*Ḳ̣VRVHṗ|pV).

There is a word denoting a *sharp piercing tool* (*ṗ ix|ɣyA) without special reference to its material (bone, wood, stone).

[80] ***č̣ˈü¹rV** 'flint-stone, knife' (coalesced in some languages with *č̣arV 'to cut') > **Ham.-Sem.**: Sem. *ˈθ̣urar- ~ *ˈθ̣irˌaˌr- > Arabic ظِرّ ϑirr-, ظُرر ϑurar- 'sharp stone that can cut as a knife', Akkadian ṣurrᵘ(m) 'obsidian, flint-stone', Hebrew צֹר חֶרֶב ṣor ʰḥerɛḇ 'blade of a sword' (ʰḥerɛḇ 'sword') ||| Coptic: ⲁⲱⲣ ʒōr, ⲁⲉⲣ- ʒer- 'to sharpen, whet' ||| ? Berber *ʒVrū/ā 'stone, rock'> Kabyle a-ʒru 'stone (material); a stone, rock', Ahaggar Twareg a-ʒəru 'muraille rocheuse', Tamazight a-ʒru (pl. i-ʒra) 'rock, large stone', ti-ʒra 'small stone'; in Berber the root coalesced with the cognate of Sem. *θ̣urr- 'rock' (unless the latter belongs to the etymon in question, too) ||| Chadic: West Chadic: Hausa ç̣ûrà 'handleless knife or sword' ¦¦ Central Chadic: Gude čɬɣ̱à, Fali of Muchella čuru, Fali of Bwagira čɬrɪn 'hoe' || **Altaic**: Tungusic *ʗ̣uru-ˌkˌa̰(n-) 'knife' > Solon šĭruxã: 'knife', Ulcha čūrɜ(n-), čurun, Nanay čūruʒ̃ ≈ čiurʒ̃ 'knife used by women in carving ornaments' || **Drav.** *cīr̲ɽaṅ 'small chisel' > Kannada cīraṇa, cīrṇa, jīrṇa 'a small chisel, esp. used in cutting metals', Telugu cīraṇamu 'a small chisel'.

[81] ? ***buRV** 'flint' (> 'to cut\carve with a flint') > **Ham.-Sem.**: Cushitic: Beja berˈrawe 'flint' ||| Sem. *°✓bry > Arabic ✓bry (past بَرَى barā, present-future -briy-) 'cut', بَرَاة barāt- 'a knife for cutting\trimming

wood\arrows' || **Altaic:** Tungusic *bu̯r∇ 'flint' > Ewenki buru, Solon boro, Lamut bur, Orochi bu, burakta, Ude bū, Ulcha, Orok buraqta, Nanay boraqta 'flint', Negidal burokta 'amber' || ??? **Indo-Eur.** *bʰer- 'mit einem scharfen Werkzeug bearbeiten, ritzen, schneiden' > Persian bur(r)īdan 'to cut', Avestan tiži-bāra- 'sharp-edged' (of a knife, etc.) ¦¦ Armenian bah 'spade', gen. -i (< *bʰr̥-ti-) ¦¦ ?? Middle Irish bern, berna 'Klaft, Schlitz' ¦¦ Slavic *borna 'harrow' > Bulgarian бра'на, Serbo-Croatian (dial.) brâna, Slovene brána, Czech pl. brány, Russian бопо'на 'harrow', Serbo-Croatian brána 'a kind of harrow'.

[82] ***ti|eˌʔaˌío*** (or ***tüˌʔaˌí∇***) 'stone, heap of stones' > **Altaic** *tᵢ̯oía~*tᵢ̯āía 'stone' > Hunnic (O. Pritsak's reconstruction) *tiāl 'stone' ||| Turkic *tᵢ̯āĺ id. > Chuvash čul ≙ čol 'id.', Narrow Turkic *tāš > Old Turkic tāš, Turkish taş 'stone', Içel Turkish daşağır 'stony land', Azeri, Salar daš, Türkmen dāš, Tuva даш taš, Yakut tās 'stone' ||| Mongolic *ʗilagun 'stone' > Middle Mongolian čilaɣun, Class. Mong. cilagun, Halha culū, Kalmuck čolūn, Dagur čolō ¶ The voicelessness of the initial consonant *ʗ- (for the expected voiced *ʒ- < A *tᵢ̯-) still defies explanation ||| Tungusic *ʒǫla 'stone' > Ewenki, Solon, Negidal, Orok jolo, Lamut jol, Orochi, Ude, Nanay, Ulcha ǯolo 'stone' ||| Korean: Middle Korean tōr(h), Phyöngyang and Seoul Korean tol, Kyöngsando dial. tôl, Hamgyöngdo dial. tȍl ||| proto-Japanese (according to Starostin) *ˌdˌíśì 'stone' > Old Japanese isagwo 'sand', Japanese: Tokyo dial. iśí, Kagoshima dial. íśʟ, Hateruma (Ryukyu Islands) ìśì 'stone' || **Ham.-Sem.:** Sem. *till- (~**tīl-~?**tall-) 'mound, heap of stones' > Hebrew tel, till- 'mound, hill, heap of stones', Jewish Aramaic tel, till-ā 'heap of stones, mound', Syriac tɛll-ā 'mound, hill, heap', Arabic tall- 'hill, heap', Akkadian till-, tīl- 'mound' || **Kartv.** *°ṭaː̯l- > Georgian ṭal-i 'flint, fragment of a tooth' || **Drau.** *ʗall- 'broken stone, (stone) chip' > Tamil calli 'stone chips, pieces of glass', Malayalam, Tulu calli 'chip, potsherd', Kannada jalli 'broken stone\metal', Tulu jalli 'broken stone', Telugu jalli 'road metal, broken stone', Parji ʒalub 'stone chips' ◇ The formula *ti|eˌʔaˌío reflects two alternative hypotheses: 1) the reconstruction *ti|eʔaío presupposes contraction of a Nostr. disyllable in Altaic: Nostr. *ti|eʔaío > Altaic *tᵢ̯āĺ∇

~ *tʼi̯ōíV, 2) the reconstruction *ti|eío presupposes a 'vowel breaking': *ti|eío > Altaic *tʼi̯ōíʳaˀ (> *tʼi̯ōía ~*tʼi̯āíV). The first alternative has an advantage: it accounts for the Kartv. and Drav. reflexes (Kartv. glottalized *ṭ-<*tʔ-< *tiʔ-, Drav. *ca-<*ti̯a-<*tiʔa-, the vowel *-a- both in Drav. and Kartv.) and for the length of the Altaic vowel (due to contraction of a disyllable), while the second alternative hypothesis presupposes rejection of both the Kartv. and Drav. roots and fails to account for the Altaic vowel length.

[83] *kiwʟ∇ɻħE 'stone' > **Ham.-Sem.**: Chadic *√kw (or *kʷ∇ʔ) 'stone' > Central Chadic: Matakam kʷaʔ, Mafa kʷâ ¦ Buduma kə̀ú, Affade kao ¦ Nzangi kwə́ə̤ ||| ? Sem.: Ge'ez kʷakʷəh (pl. kawākəh) 'stone, rock, stony ground', Arabic kāh-, kīh- 'rugged face of a mountain, side of a valley consisting of the hardest and roughest stone' (in the prehistory of Arabic *∇w∇ > ∇) || **Kartv.** *kwa- 'stone' > Old Georgian kva-y, Georgian kva, Megrelian, Laz kua 'stone' || **Uralic**: Finno-Ugric *kiwe 'stone' > Finnish, Estonian kivi ¦ Erzya & Moksha Mordvin кев ќev ¦ Cheremis кӱ ӟ küy ¦ Permian *ki 'stone, millstone' > Votyak кӧ kɜ, Southwestern Votyak kȯ 'millstone', Ziryene iz-ki id. ¦¦ Ob-Ugric *kə̄w 'stone' > proto-Vogul *kə̄w > Konda & Pelïmka Vogul käw, etc.; proto-Ostyak *köɣ 'stone' > Vakh Ostyak köɣ, etc. ¦ Hungarian kő (accus. követ) id.

[84] *boruʕ|ɣ∇ 'trunk' ('log') > **Ham.-Sem.**: Sem. *burʕ-~*burāʕ- 'reed' > Ge'ez bərʕ 'reed', Akkadian burû 'reed mat' (> Syriac būrā id.) || **Indo-Eur.** *bʰruH-/~bʰreHw- 'log' > Old Norse brū 'bridge', bryggja 'landing-place, embankment', Old High German brucca, Anglo-Saxon brycʒ 'bridge', Bavarian German Bruck 'Bretterbank am Ofen', Swiss German brügi 'Holzgerüst', German Brücke, English bridge ¦¦ Gaulish brīva 'bridge' (< *bʰrēwa) ¦¦ proto-Slavic *brъvь, *brъvъ 'trunk, log' > Bulgarian (dial.) брьв ~ брьф 'a tree used as a bridge over a stream\river; footbridge', Serbo-Croatian brv̂ 'footbridge, log used as a footbridge', Slovene brv̂ 'footbridge, gangway, gangplank', Old Russian, Church Slavonic **брьвь**, **бръвь** 'log', **бєрвь** 'raft, embankment', proto-Slavic derived stem *brъvьno ~ *brъvьnъ ~ *brъvьna 'log' > Old Church Slavonic

бръвьно, Bulgarian **бръв'но**, **'бървен**, Russian **брев'но** id. || **Uralic**: Finno-Ugric *pora 'logs used as a raft or a bridge, a board' > proto-Lappish *pɔ̄rēvē > Norw. Lapp **boar're** 'logs placed together to form a primitive bridge over a river or lake; a board used as a floating raft', Lule Lapp **parrē** 'raft', Ter Lapp **poarrew** 'board (Brett)' ¦ Permian *pur 'raft, ferry' > Votyak **pur** id., Ziryene **pur** 'raft', Ziryene (dial.) **pur** 'raft, ferry' ¦¦ Ob-Ugric *pōrā 'raft' > proto-Vogul *pārā > Tavda Vogul **parā**, Sosva Vogul **pɔ̄ra** id.; proto-Ostyak *pă̄ra > Vasyugan Ostyak **pă̄ra** id., etc. || ?? **Drav.** *paru|inc- 'hilt of a sword' > Tamil **pariṅcu**, Malayalam **priṅṅu**, Telugu **parūʒu** id.

[85] ? ***ʗ̣U̯l∇** 'stalk, stick' > **Kartv.** *ʦ̣wel- 'stalks, straw' ¦('staff') > Old Georgian **ʦ̣wel-i** 'stalk(s)', Georgian **ʦ̣vel-i** 'chaff', Megrelian **ʦ̣u-** id., Laz **ʦ̣u-** 'straw (stalks)', **o-ʦ̣val-e** 'мякинник' || **Ham.-Sem.**: ?ɑ Sem. *ʳs̱'ill- or *ʳs̱'ull- 'thorn' > Akkadian **ṣillum** ~ **ṣullum** 'thorn', 'pin, needle'. A deglottalized variant *salw- ~ *sall- ~ *sull- is suggested by Bibl. Hebrew **sal'lōn** 'thorn', Jewish Aramaic **סִילְוָא** **sil'wā**, Syriac **sal'w-ā** id. and Arabic **sullā?-** 'épines du palmier' ||| Berber *-ʒil¡y¡- or *-ʒul¡y¡- 'branch' > Ahaggar Twareg **a-ʒal** (pl. **i-ʒl-ān**) 'branch', East Tawellemmet **a-ʒal** (pl. **i-ʒal-an**), Tayert **a-ʒal** (pl. **aʒl-an**), Ghat **aʒal** (pl. **iʒlan**), Tashelhit **ta-ʒaly-īt** (pl. **ti-ʒaly-ā**) id. || **Ural.**: Finno-Ugr. *ćü|i]∇ ~ *ću]∇ 'stalk, stick' > Lowland Chreremis **чылык** **ćълък** 'a thin twig\rod used to clear pipes', **чылым** **ćълъm** 'pipe', Highland Cheremis **цӹлӹк** **calak** 'a pipe of the Cheremis Dudelsack' ¦¦ proto-Ostyak *ćŏ]∇ > Kazïm Ostyak **św̆]ĭ'** 'Knüttel beim **śɔ·r**-Spiel, Knüttel zum Schleudern von Zirbelzapfen', **św̆]w̆ w** 'Knüttel beim **śɔ·r**-Spiel; eigens zum Abschalgen von Zirbelzapfen hergestellter Stock' || **Altaic**: Tungusic: Solon **ʗoĭʗo'xu** 'transverse perches of the roof' ('поперечные жерди на крыше') || **Drav.** *cu]ikk∘ 'stick' > Tamil **cu]ikku** 'pikestaff, sharp-pointed stick carried by travellers', Kannada **cu]ike** 'a stout stick to beat cotton with'.

[86] ***ʞ̣oǯʕ∇** 'tree trunk' > **Kartv.**: Georgian **ʞ̣oǰ̌-i** 'beam' || **Ham.-Sem.**: Sem. *gu8¡∇¸ʕ- ~ *gi8¡∇¸ʕ- 'tree trunk' > Hebrew **'gezaʕ** ~ **'gɛzaʕ**, Syriac **gud'ʕ-ā**, Arabic **ǧiðʕ-** id. ||| Berber: Tashelhit **agъǯ̌ǯa** (pl. **igъž̌w̆ān**) 'trunk' ¶¶ Ham.-Sem. *g- < *ʞ̣- by assimilation? || **Altaic**: Mong.

*qoʒu|igula > Class. Mong. qoʒugula ~ qoʒigula, Halha-Mong. хоʒууль 'tree trunk, stump'.

[87] ***kaN̂∇(-b∇)** 'stalk, trunk' ('log') > **Indo-Eur.** *°genbʰ-/*gnobʰ- 'peg, stick, piece of wood' > [1] Germanic *kamb-, *kumb- > Old High German kembil 'Fesselblock', kamp 'compes', Old Norse kumbr 'wood-block', English chump id. (ch- due to the influence of chop), Norwegian (dial.) kump 'Klumpen'; [2] Germanic *knab-, *knabb-, *knap-, *knapp- 'peg, stick' (→ 'penis' → 'boy') > German (dial.) Knabe 'Stift, Bolzen', Old High German knabe, German Knabe, Anglo-Saxon cnafa 'boy'; Old Norse kneffil 'pole, peg, stick' ('Stange, Pfahl, Stock'), Middle Low German knevel 'short and thick transom (kurzes, dickes Querholz)', Swedish (dial.) knavel 'thin pole' || **Ham.-Sem.**: Sem. *kann- ≈ 'stem', 'base' > Akkadian kannu 'slip (of a plant), stalk, shoot (of a tree)', Syriac kanˈn-ā 'stem (of a tree), stalk, root (of a plant)', Jewish Aramaic kanˈn-ā, Mandaic kana 'base, fundament', ? Biblical Hebrew בֵּן ken 'base, pedestal' (the vowel e is mysterious), Tigre ካናት kan-ət (pl. ክናጉkanan) 'rowing-pole' ¶ There is probably contamination of the Sem. word in question with another word, meaning ≈ 'place' ||| Cushitic: Agaw *kan- 'tree' > Bilin, Khamir, Kwara kana, Awngi kani || **Drav.**: [1] Drav. *kaṉṉ- 'sprout, shoot' > Tamil kaṉṉi id., Malayalam kaṉṉi 'shoot of betel vines' |||| [2] Drav. *kāmpₒ 'stalk, trunk' (< Nostr. *kaN̂∇(-b∇))> Tamil kāmpu 'bamboo; flower-stalk, handle, shaft', Malayalam kāmpu 'bamboo; stem, stalk', Kota kaˑv 'handle', Toda koˑf 'hollow stem, handle of tool', Kannada kāmu, kāvu, Telugu kāma 'stem, stalk, handle', Gadba kāmē 'handle of a spoon', kāme 'handle of ladle', kanve stick', Kodagu keˑmbi 'bamboo *Oxytenanthera monostigma*', Kuwi kamba ≙ kāmba 'handle' |||| [3] Drav. *kaN̂∇kk- 'stick' > Kota kaN̂k 'thin dry sticks', Kannada kaṇike, kaṇuku 'stalk of millet', kaṇḍike 'stalk, stem', Tulu kaṇaku 'firewood', Telugu kaṇika 'stick', ? Kuwi kandi 'stick, twig', Kurukh kaŋk 'wood, timber', Malto kanku 'wood' || **Uralic**: Finno-Ugric *kanta 'stump of a tree' (→ 'base') > Finnish kanta 'ground, base, heel', Estonian kand (gen. kanna) 'heel', Finnish kanto, Estonian kand (gen. kannu) 'stump' ¦ proto-Lappish *kōntɔ̄ɣ 'stump' > Norw. Lapp guodˈdo id., Lule Lapp kuottōi id.,

'windfallen tree', Kildin Lapp kʉ̄ɜ̄ndˑ 'windfallen tree' ¦ Erzya Mordvin kando, Moksha Mordvin kanda '(wind)fallen tree' ¦¦ Ob-Ugric *kɨ̄ntV > proto-Vogul *kɨ̄nt(V) 'a beam, serving as the vertical support of a storehouse' > Pelïmka Vogul kɜ̄nt, Upper Lozva Vogul xānta; proto-Ostyak *kant 'horizontal beam in a storehouse' > Vasyugan Ostyak kant.

[88] ***ǯuRV** 'pole, long piece of wood' > **Ham.-Sem.**: Egyptian zɜw, zɜyy 'Balken', Demotic Egyptian sy, Coptic soi 'poutre' ||| Berber *✓zrr 'branch, cluster' > Ghadamsi ta-zrira 'branchette porte-fleur', Tamazight a-zrur 'grappe', ? ta-zra 'collier', ? Kabyle a-zrar id. || **Kartv.** *ǯwar- 'pole' > Old Georgian ǯuar-, Georgian ǯvar- 'cross', Megrelian ǯgunǯg- 'pole (used as a prop for vine), stamen', Atinuri Laz mzguǯ- 'pole, thorn' || **Indo-Eur.** *swer-/*°sur- 'pole' > Old Indian ˈsvaru-ḥ 'sacrificial post, stake, long piece of wood' ¦¦ Greek ἔρμα 'prop, support', Homeric Greek accus. ἐρμίν-α 'best-post' ¦¦ Old High German swirōn 'bepfählen', Middle High German swir 'Uferpfahl', Swiss German Schwiren 'pole', Anglo-Saxon swier, swior 'post, wooden pillar' ¦¦ Latin surus 'branch, pole' ¦¦ ?? Latvian svēre 'Ziehbalken beim Brunnen' (contamination with the root of svȅr-t 'to raise with a lever') || ?? **Altaic**: Mongolic: Class. Mong. ɜoruga 'arrow with a horn head'.

[89] ***ǯ̂irɣu|ü** 'vein, sinew' > **Kartv.** *ǯarɣw- 'vein, sinew' > Old Georgian ǯarɣvi 'sinew', Georgian ǯarɣvi 'vein', Megrelian ǯerɣvi, Svan ǯärɣ- id. || **Indo-Eur.** *ser(w)- 'vein, thread', 'to string, join in a string' > Old Indian sarat 'thread', saraḥ 'string', Avestan hara 'mountain range', Persian hār 'a string or garland of beads, etc.' ¦¦ Tocharian A sar- 'vein' ¦¦ Latin servia 'garland' || **Altaic** *sirwʳü˺ > Mongolic *sirbü-sün 'sinew, tendon' > Middle Mongolian širbüsün 'tendon, sinew', Class. Mong. sirbüsün, Halha-Mong. шөрвэс, Kalmuck шүрүсн 'nerve, sinew, tendon; fibre, filament', Buryat шүрбэһэ(н) 'tendon', Ordos šörwösü, Monguor šbuɜɜ 'nerve, muscle, fibre, filament' ||| Tungusic *sire-, *sire-kte 'sinew, thread' > Ewenki sirɜktɜ 'sinew, vein, sinew-fibre', Solon širittɜ, Negidal siyɜktɜ, Ude siɜktɜ, Ulcha, Nanay sirɜktɜ 'thread'; Ewenki sirɜ̄n, Arman Lamut sirɜn 'thread of horse hair', Negidal siyɜ̄n

'thread' ||| ? Korean: Old Korean (11th c.) sir|l 'thread', Korean sir id. || ??? **Ham.–Sem.**: South Cushitic: Iraqw dɛ̄ʕarā́mo 'root, sinew' ◇ The apparently irregular initial *s- in IE (for the expected *l- from *ŝ-) is accounted for by the IE law of *l̄ r-incompatibility: in the presence of a *r the expected initial *l- is replaced by *s-, i. e. *ŝ-...r > IE *s...r. A similar law in Altaic seems to be responsible for the initial Altaic *s-.

[90] ***ʔeêekU** 'thorn, hook' (< 'tooth') > **Ham.–Sem.**: Sem. *ŝikk(-at)- 'thorn', 'pin, nail' > Biblical Hebrew ŝek (pl. ŝikʲkīm) 'thorn', Arabic šikk-at- 'weapon, edge', Jewish East Aramaic sikʲk-ā, sikk-aʲṯ-ā 'pin, nail', Akkadian šikk-at-u(m) 'point, Spitze' (aphaeresis pS *ŝikk- < *ʔiŝikk-, like in pS *ʲp- 'mouth' < *ʔap-, cp. Cushitic *ʔap- 'mouth') ||| Cushitic *ʔiŝikʷ- 'tooth' > South Cush.: Kwadza iŝikuko, pl. iŝikʷa, Asa liga, Mbugu iʔíke id. ¦¦ East Cush. *ʔilk- id. > Saho ik-o, Somali ilig, pl. ilk-o, Rendille ilaħ, pl. ilk-o, Baiso ilk-o (pl.?), Elmolo ilk-oʔ, Arbore ilk-o, ilkwa id., Oromo ilk-āni 'teeth', Konso ilk-itta, Gidole ilh-itt, ilh-a, Gawwada ílg-e, Harso ilgakko, Sidamo hink-o, Alaba inḳ-u, Kambatta ink-e, Hadiya inḳ-ē, Burji irḳ-ā id. ¦ Agaw *əRkʷ- id. (*R < Cush. *l and *r) > Bilin ʔərkʷi, Khamir erəkʷ, Kwara yerkʷ, Kemant ərku, Awngi ərkʷí id. ¦¦ Beja ayəkʷ 'a front tooth' || **Altaic** *ēlku 'hook', v. 'hang on (smth.), hang on a hook' > Tungusic *elgu 'hook (for pulling fish out of a net)', (<?) 'bear's fang' > Negidal əlgu/ə 'hook, bear's fang', Ewenki əlgu, Lamut əlgъ~ъlgъ 'fish-spear', Orochi əggu, Ulcha əlǯu, Orok əldu, Nanay əlgu 'hook' ||| Mongolic *elgü- v. 'hang on (smth.) > Class. Mong. elgü-, ölgü- v. 'hang, hang on (a nail), elgün qada- v. 'nail onto (as pictures to the wall)', Halha-Mong. ölgö- v. 'hang, hang on (smth.)' ||| ? Turkic *īl- v. 'hang on (smth.)' > Old Turkic il- 'to catch smth. (with the hand, a hook, etc.)', Türkmen īl- id. ('прицепляться, зацепляться'), Yakut īl- 'to hang (smth. on an animal's back)', Qumïq, Qïrghïz, Qaraqalpaq, Nogay, Uzbek, East Turkic, Turkish (dial.) il-, Qazaq ıl ĭl-, Volga Tatar, Bashqurt əl– ьl, Khakas il– ĭl- v. 'hang on', Altay il- v. 'hook, hook on'.

[91] ***ḳʳaˀkˌwˌ∇** 'tooth, claw', 'hook' > **Kartu.** *ḳaḳw- 'hook' > Georgian ḳaḳvi 'hook' ('Haken, Häkchen'), Laz ḳoḳ-a id., ḳoḳari ~ ḳuḳari id. || **Ham.**–

Sem.: Sem. *kakk- '(a kind of) tooth, sharp stick' > Jewish Aramaic kak'k-ā, Syriac kak'k-ā, Mandaic kaka 'tooth, molar', Akkadian kakk-u(m) 'stick, weapon' || ? **Indo-Eur.** *kog-/*keg- 'hook, claw' > Germanic *hōka-, *hakan- and *hēkan- 'hook' > Old High German hāko, haggo, Anglo-Saxon hōc 'hook' > English hook; Old Norse høkja 'poker' ¦¦ Slavic *kogъtь ~ *kogъtъ > Old Russian, Russian 'коготь, Czech (dial.) kohát 'claw', High Lusatian kocht 'awn, костерь (a weed cereal)' ¶ The lack of labialization of the IE stem-final consonant is still to be explained || **Uralic** *kokka 'a protruding point, hook' > Finnish kokka 'a protruding point', 'stem of a ship (Vordersteven, Vorderschiff)', Finnish (dial.) kokka 'hook, fish-hook', Karelian kokka 'hook, stem of a ship' ¦ proto-Lappish *kɔ̄kkē > Norw. Lapp goakke 'hoe', Inari Lapp koakki, Kildin Lapp kuəɔ kə̯ 'hook' ¦¦ Vasyugan Ostyak kaɣəw, Teryugan Ostyak kåɣəp, kuɣp- 'hölzener Hachthaken'; alternatively, the Ostyak word may go back to Finno-Ugric *kopkka < Nostr. *goPḴa '(a kind of) tooth, hook' ||| Kolïma Yukagir kōke 'head (of a fish, of an animal)' || **Altaic**: Tungusic *xūkte 'tooth' (< **xūk-kte, where *-kte is a suffix) > Ewenki ī̄ktɜ 'tooth', Negidal ī̄ktɜ 'tooth, canine', Nanay xukte 'tooth', Class. Manchu weyxe, Sibe Manchu vī̄xɜ 'tooth, canine', Jurchen yuyxe 'tooth' || **Drav.** *kokk- 'hook' > Tamil kokki id., Malayalam kokka 'clasp, hook', Kota koky, Toda kwɨky, Kannada kokki, kokke, Kodagu kokke 'crook, hook', Tulu kokkæ 'hook, clasp', Telugu kokki 'a hook', Gondi kokki 'hoe' ¶¶ The association of this Drav. noun with the partially homophonous verb *koŋkk-/*kokk- v. 'bend' is secondary (popular etymology). It brought about blended forms like Telugu koŋki 'hook' ◇ The labialization of the vowel in Ural., Drav. and Tungusic may be due to Nostr. *w (still preserved in Kartv.). The Nostr. vowel *a is reconstructed on the evidence of IE (initial *k- without labialization or palatalization), Semitic and Kartvelian. The long *-kk- in Ural. may point to the underlying ancient consonant cluster, but it (just as Kartv. *-ḳ-) may be also explained by assimilation.

[92] ***toŕ∇** 'bark; to bark (remove the bark), to peel' > ? **Ham.-Sem.**: Chadic: Angas-Goemay *(n)daram 'bark' > Sura dɜ̀ràm 'thick tree-bark', Tal dɜram, Yiwom ndàràm, Tambas dàràm 'bark', Angas darm ¦ Warji tirhei

'skin' ¦¦ East Chadic: Somray tàríń 'bark', Kera tīrɜ, Tumak dāŕ 'human skin' || **Indo-European** *der- 'to skin, flay, bark' > Armenian terem 'I flay, skin' ¦¦ Greek δέρω id., δείρω id. (*-yo-present) ¦¦ Low Lithuanian (Zhemaitian) derù, Lithuanian diriù (*-yo-present), inf. dìrti v. 'flay, bark' ¦ proto-Slavic *derǫ / *dьra-ti > Old Church Slavonic derǫ, dьrati v. 'skin, flay; tear to pieces, lacerate', Russian драть, де'ру v. 'bark (a tree)', обо'драть, обде'ру v. 'peel, bark', Czech deru, dříti 'schinden, schälen' || **Altaic** *tōŕ∇ > Turkic *t‿ōŕ 'birch bark' > Old Turkic toz 'birch bark', Volga Tatar tuz, Bashqurt tuδ, Qazaq toz, Standard Altay, Khakas tos, Tuva t'ós, Tofalar t‿os, Yakut túos 'birch bark', Azeri toz-aɣačı 'birch tree' (aɣač 'tree') ||| Mongolic *duru-sun > Class. Mong. durusun, Halha дурс 'shell, bark', Kalmuck dursən 'bark (Baumrinde)' ||| Tungusic *duri 'cradle made of birch bark' > Lamut dȯr ≙ dur, Negidal duy, Orochi duyi, Ude düi, Ulcha, Nanay duri id., Class. Manchu duri 'cradle' ◇ The IE root goes back to a merger of two Nostr. roots: *ʳtˀoŕ∇ 'to peel, to bark' and *terʳiˀ 'to tear, burst'.

[93] *Ḳaʳpʔ|ʕˀʳEˀ 'bark' > **Ham.-Sem.**: Cushitic: Agaw *ḳapp- > Awngi qap, Bilin ḳāf 'bark' ¦¦ South Cushitic: Iraqw qafi (pl. qafō) 'membrane, cover', qâfta 'peel of fruits', Alagwa qafaʔi, Burungi qafa 'bark' ||| Chadic: West Chadic: Geji gùpŝıŋ 'bark', Boghom kòpŝaŋ id., Zar of Kal kʷàḅà, Zar of Gambar-Lere kàbú, Saya kóbɜk ¦¦ Central Chadic: Tera gɜ̀ḅà, Pidlimti gɨḅɜr 'bark' || **Uralic** *kopa 'bark' > Estonian kõba 'fir bark' ¦ Erzya-Mordvin кувo 'crust, rind', Moksha-Mordvin кува id., 'bark' ¦ Cheremis (dial.) kuwo ≙ kuw̆u ≙ kuwə ≙ kŭwo 'chaff, pod, husk' ¦ proto-Permian *ku 'bark, skin' > Votyak ku id., Ziryene ku 'pelt, skin' ||| Samoyedic *kopå 'skin, bark' > Tundra Nenets хобă 'skin (of an animal)', Forest Nenets kōp:ă, Nganasan 'kufu, Enets 'koba 'skin', Taz Sölqup qopɨ 'pelt of an animal, skin, bark, rind', Kamassian k'uba, k'uβa 'skin, hide, leather', Koibal куба, Mator kō 'skin', Taigi когото 'his skin' (according to Janhunen's analysis) || **Altaic** *k'ắp'a 'bark, skin' > Turkic *k'āpuk 'bark, shell' > Old Turkic qavıq, qavuq 'bran', Old Qïpchaq [14th c.] qawuq 'millet\barley gruel', Turkish kabuk, Türkmen gābıq, Azeri gabıg, Salar goχ, Volga Tatar, Bashqurt, Qa'zaq, Qïrghïz qabıq, Gagauz, Balqar qabuq, Crimean Tatar

qabuχ, Uzbek qobiq, East Turkic qobuq, Chuvash хупă χwbъ 'bark, shell', Khakas χabıχ, Tuva χavıq 'husk'; Gagauz qap 'cover' ||| Mongolic *qaʳβʾuda-sun 'bark' > Class. Mong. qagudasun, Halha хуудас, Buryat хуудаһа(н) 'sheet of paper', Kalmuck хуудс χūdъs id., χūdъsŋ 'bark'; Mongolic *qaʳβʾura- v. 'peel' > Class. Mong. qagura- ~ qaura-, Halha хуура-х v. 'peel off'; Mongolic *qaʳβʾul- v. 'peel' > Middle Mongolian χaʳɣʾul-χu v. 'skin, flay, peel' ('abhäuten, abschinden'), Class. Mong. qagul-, Halha хуула-х v. 'peel off, skin, flay', Kalmuck хуул-х χūl-хъ, Monguor χūʿli- id.; Mongolic *qobqul- v. 'peel, flay' > Class. Mong. qobqul-, Halha ховхло-х id.||| ?ʊ Tungusic *хabda- v. 'clean a tree from branches', *хabda-nsa 'leaf' > Manchu abda-, abdala- 'clean a tree from branches', abdaχa 'leaf', Jurchen abuha (or abdaha), Ewenki abdanna, Lamut ebdъnrъ ≙ ebdъndъ, Negidal abdahān, Orochi abdasa, Ude abdeʰæ, Ulcha, Naikhin Nanay χabdata, Bikin Nanay χabtaca ~ χabca ~ χaftaca, Orochi χamdata, Sibe Manchu afəha ~ afχa 'leaf', Class. Manchu afaχa 'leaf (flowing on water), sheet (of paper)' ||| proto-Korean (according to Starostin) *kàpʰ- (~ *kʌ̀pʰ-) 'bark' > Middle Korean kàpʰír, kəpčìr 'bark', Standard Korean k:əpcil 'skin, bark, shell', k:əpteki id., 'husk, peel', Korean dialects: Phyöngyang k:əpčil, Phyöngyang-Namdo k:əpćil, Kyöngsangdo k:əpćì, Hamgyöngdo k:ɔ̂pći_, Seoul k:ɔ́ptil, Chöngsando koptégi, Kangwöngdo kəptegi 'bark', Chejudo k:əptegi id., 'skin' ||| proto-Japanese *kapa 'skin, bark' > Old Japanese kapa, Japanese dialects: Tokyo kawá, Keto kàwa, Kagoshima kawa, Nase kó, Shuri kā́, Yonakuni kà ¶¶ According to Starostin, the Altaic root has a variant *kʻə̄pʻo > proto-Korean *kʌ̀pʰ- (see above), Turkic *kʟʻ˩epek 'bran, chaff' and Mongolic *kebeg 'bran, husks'. These two variants may represent two different results of synharmonic levelling, suggesting the existence of a front vowel in the second syllable of the Nostr. root || ? **Kartvelian**: Georgian ḳep-i 'sheet of paper'; the unexpected vowel e has no explanation so far ◇ The vowel *o in Ural. may be explained by assimilary influence of *p.

[94] ***Ḳayer∇** 'bark, film' > **Altaic** *kʻayEr∇ > Mong. *qayir˩∇˩-sun 'scales' > Middle Mongolian qairsun 'fish scales', Class. Mong. qairsun ~ qairasun, Halha-Mong. хайрс 'scales (of fishes and reptiles), Ölöt

Kalmuck хārsŋ̥ 'scales, hard bark, callosity' ||| Turkic: Volga Tatar qayraq 'hard tumour' (the homonymy with qayraq 'whetstone', bringing about popular etymology: 'tumour as hard as a whetstone'), Volga Tatar qayrı 'bark, lime bast', Chuvash (dial.) хоуьр 'bark' ||| Tungusic *хere- v. 'bark' > Class. Manchu ere- v. 'bark of a birch-tree', Ulcha хэгэ- v. 'scale (dried fish skin)', Tungusic *хere-kte 'bark' (noun) > Ewenki эгэktэ 'bark', Negidal эуэktэ, Ulcha, Orok, Nanay хэгэktэ, Orochi ēktэ 'skin', Lamut эгtь id., 'scales' ||| proto-Korean (according to Starostin) *kʌ́r-čʰi̯ə̀ŋ > Middle Korean kʌ́r-čʰi̯ə̀ŋ 'young skin of a plant' ||| proto-Japanese *kara 'shell' > Old Japanese, New Japanese kara || **Indo-Eur.** *ker- 'skin, hide, bark' > Old Indian ˈcarma 'skin, hide', Avestan čaraman- 'hide, leather', Old Persian čarman- 'leather' ¦¦ Latin corium 'thick skin, hide, bark' ¦¦ Greek κώρυκος 'leather sack' ¦¦ Irish curach, Welsh corwg, cwrwg 'boat made of animal skin' ¦¦ Lithuanian karnà 'lime-bast', Prussian kērmens 'body' ¦ Slavic *kora 'bark' > Old Church Slavonic кора, Bulgarian, Russian коˈра, Serbo-Croatian kȏra, Slovene kóra, Czech kůra, Polish kora id.|| ?? **Kartv.**: Georgian kerk- 'bark, crust, peel', Arxavuri Laz kyark- 'skin of the hand' || **Uralic:** (1) pre-Ural. **ˈkayer∇ > **kayr∇ > **kār∇ > Finno-Ugric *kōr∇ 'skin, bark' > Finnish kuori 'skin, peel, bark, crust, shell', Estonian koor 'shell (of eyes), peel, bark' ¦ Erzya & Moksha Mordvin kaŕ 'bast shoe' ¦ Permian *kȯ́rś > Ziryene kɨ́rś 'bark' ||| Samoyedic *kär (?) 'skin, shell' > Tundra Nenets сяр" 'skin, surface', Obdorsk dial. śā̆rˀ 'harte Innenfläche der Tierhaut', Forest Nenets ś́a·rˀ in nūm ś́a·rʻ 'Himmelsgewölbe', Taz Sölqup qora 'hide' ||| Kolïma Yukagir хār 'skin', šān-хār 'bark' (lit. 'tree-skin') |||| (2) pre-Ural. **kaˈyer∇ > Finno-Ugric *kere > Finnish keri 'the bark which grows on the birch tree after the first bark has been removed', Estonian kere 'lime-bast' ¦ proto-Lappish *kэrэ 'bark' > Norw. Lapp gârrâ, Kildin Lapp kэrr id. ¦ Erzya Mordvin керь keŕ, Moksha Mordvin кяр kär 'bark, sheet of lime bast' ¦ Highland Cheremis kər, Lowland and East. Cheremis kür id. ¦ Permian *kör > Ziryene kor / kory- 'peel', (in a set phrase) 'sheet of lime-bast', Luza Ziryene kor 'upper layer of bark', Upper Sïsola Ziryene kǫr 'bark', Votyak, Permyak kur, Southwestern Votyak kůr, Beserman Votyak kȯ̊r 'lime bast' ¦¦ Ob-Ugric *kīr(∇) 'bark' > proto-Vogul *kīr > Tavda,

Konda and Sosva Vogul kēr id.; proto-Ostyak *kir 'snow crust' > Vakh Ostyak kir id.; proto-Ostyak *kär 'bark' > Vakh Ostyak kär ¦ Old Hungarian kér 'diaphragm', (in compound words) -kér 'thin skin, film', Hungarian kérëg 'bark, crust'.

[95] *ṭo꞉w̯ɻga or *ṭoga꞉-w∇ɻ 'hide, skin' > **Kartvelian** *ṭqaw- id. > Old Georgian ṭqaw- 'leather, skin, hide', Georgian ṭqav- id., Megrelian ṭqeb- 'skin', ṭqabar- v. 'skin', Laz ṭqeb- ~ ṭeb- 'skin, hide' || **Ham.-Sem.**: Chadic *✓ḍk 'skin': West Chadic: Bole ḍìší ¦¦ Central Chadic: Masa ḍígĩ́nà ~ dik 'skin', Zime ḍíké ~ ḍìké 'human skin', Lame dikietú, Lame-Peve dìketu 'skin' ¦ Chadic *✓ṭk ~ *✓tk 'skin, body' > East Chadic: Migama túkkú, Jegu tok, Mubi tògò ≙ tógò 'skin, hide' ¦¦ West Chadic: Yiwom tak 'body' ¦ Warji ṭə̀ʊ́ə̀ɻ, Tsagu čúkè, Kariya tí, Miya túwàtú, Mburku ṭə́wó, Jimbin túwá 'body' ¦ Ngizim tə̀kà 'body' (unless from Kanuri tígə̀ 'body') ¦¦ ?? Central Chadic: Masa twạ, tú:nà, Zime-Batna tú 'body' || **Indo-Eur.** *twakos 'skin, hide' > Old Indian tvak 'skin, hide' ¦ ? Old Persian taka- 'shield' ¦¦ Greek σάκος 'shield' (← * 'made of leather'), φερεσσακής m. 'shield-bearing, Schildträger' (σ- < *tw-, -σσ- < *-tw-) ||| Hittite tuekka- 'body, person, self', Lycian tukedri- 'statue' || **Uralic** *°to˽k˽∇ (or *toʊ∇, *tow∇) > Ob-Ugric *tăʊ- 'skin, leather' > proto-Vogul *tăwəĺ id. > Tavda Vogul tawĺ, Konda Vogul towĺ, etc.; proto-Ostyak *tăɣta 'reindeer hide' > Teryugan Ostyak taɣtə, etc. || **Altaic**: ?φ Tungusic *tɨ̯kɨ̯-kta 'skin, hide (from animal's head)' > Ew tiki-kta 'skin', Lamut tīkɜn 'hide (from animal's head), Negidal tɨkta, Orochi tikta 'animal's hair' || **Dravidian** *tokk◦ 'skin, bark, rind' > Tamil tokku, Telugu tokka id., Malayalam tokku 'skin, peel' ¦ derived stem *tokaṯ 'bark, peel' > Kannada togaṭu, togaṭe, tōṭe 'bark, rind, peel, pod', Tamil, Malayalam tōṭu 'shell of a fruit', Gondi tōtā 'outer skin of the mahua fruit', Gondi Koya toṯṯe v. 'peel' ◇ The meaning 'body' (in Hittite and West Chadic) is secondary (metonymy 'skin', 'body').

[96] *ṭal꞉U̯ɻga 'skin, pelt' > **Ham.-Sem.**: Chadic: Kariya, Pa'a tala, Tsagu tal 'skin' || **Uralic** *tal‖ga 'skin, pelt' > Finnish talja id.; proto-Lappish *tōlgē 'pelt' > Norw. Lapp duol꞉lje ||| Samoyedic *ˈtʲåʙˈgʲʙ (= *t|cåʙj|ńʙ)

'skin of the head' > Tundra Nenets тай 'skin of the forehead; forehead', Obdorsk dial. tāy 'skin of the face', Forest Nenets tai, tāyɔk'u id., Nganasan tuaja 'skin of the forehead', Somatu Enets tâjo, Bay Enets taijo 'skin of the head', Kamassian (der.) t'uyu-šьk'tu' 'reindeer\elk hide used as a bed (Schlafstätte)' || **Altaic** *°t'aˈu˺ > Tungusic *talu 'birch bark' > Ewenki talu, Solon tala ~ talų, Negidal, Ulcha, Orok talų, Orochi talu, Ude taluga, Nanay talo ~ talų, Class. Manchu tolɣon || **Drav.** *tōl / *toli 'skin, hide' > Tamil, Malayalam tōl 'skin, hide', Tamil toli 'skin, rind, husk', Malayalam toli 'skin, bark, peel, rind', Kota to·l, Toda twɪ·ṣ, Kannada tōl(u), Kodagu to·lɪ, Telugu tōlu, Kuwi tōlū, tōlu 'skin, hide', Tulu tolikæ, Parji, Gadba tōl 'skin, bark', Naikri, Naiki, Parji tōl 'skin', Gondi tōl 'skin, hide' ≙ tōla 'skin, bark of tree' ≙ tōlu 'skin', Konda tōl, tōlu 'skin (of animals)' ◇ The rounded vowel following *l in the Nostr. etymon is tentatively postulated as responsible for *-u in Tungusic and the labializing assimilative influence in Drav. (bringing about *ō rather than regular *a < Nostr. *a).

[97] ***Ḳaíˈü˺*** 'skin, film, bark' > **Indo-Eur.** *kalno-, *kl̥no- 'callosity, hard skin' > Latin callum, callus 'hardened thick skin, callosity' ¦¦ Sanskrit 'kiṇa 'callosity' (↚ Middle Indian < *kr̥ṇa) ¦¦ Albanian 'a-kull 'ice' ¶ The stem may have been semantically influenced by IE *k[k̂]al- 'hard' (> Old and Middle Irish calath, calad 'hard') || **Uralic** *kaĺwᐁ 'film, thin skin' > Finnish kalvo 'film, membrane', Estonian (dial.) kale, kalu, Livonian kaĺg_ 'cataract' ¦ Permian amb*kiĺ > Ziryene kiĺ 'seed-coat, surface film, outer [scaling off] layer of birch bark, dandruff', Votyak kiĺ 'scales that come off from the bark, dandruff' ¦¦ Hungarian hályog, (dial.) hajag, halyag, hálog 'cataract' ¶ The Permian root is ambiguous: it belongs here only if its *i is accounted for by assimilatory influence of consonants; otherwise it belongs to Finno-Ugric *keźe < Nostr. *keźʔᐁ 'skin, bark' || **Altaic**: Mongolic *qali-sun 'the outer layers of smth.; peel, rind, bark, skin' > Class. Mong. qalisun, Halha хальс, Kalmuck хальсн χaĺsən, Buryat χaĺha(n) id., Monguor χaliʒ_ɜ 'pellicule, membrane, écale, épiderme' ||| Tungusic *χalu- 'pellicle' > Bikin Ude alu 'dandruff', Class. Manchu alɣuwa 'outer pellicle (of brain\kidneys\heart), skin of fruit'; Tungusic *χalu-kta 'film, inner side of

hide (mezdra)' > Lamut altъ id., Orok χaluqta, Naikhin & Bikin Nanay χaloqta, Ewenki, Orochi, Ude alukta, Negidal alta 'the inner side of hide'; Tungusic *χalu- > Kur-Urmi Nanay alu- v. 'remove the inner side of hide', Lamut alъw- id., v. 'remove a film' ◇ Compare also Kartv.: Georgian ḳrol-i 'outer shell of a nut\chestnut'. If it belongs here, the initial consonant is to reconstruct as *ḳ-. The root is to be carefully disinguished from paronymic roots, such as *Ḳoẑ∇ 'to peel, to skin'.

[98] ***ḳoRuṗ∇** '(kind of) bark', 'skin' > **Kartv.**: Georgian ḳorṗ-i 'bark of cork-oak, cork' || **Ham.-Sem.**: Sem. *√ḳrṗ 'to peel off' > Arabic √qrf id., Ge'ez √ḳrf 'v. peel off, skin, bark'; Sem. *'ḳirap(-at)- 'bark' > Arabic qirf-at- id., pl. qiraf-, Ge'ez ḳərəft 'bark, skin, peel, rind'; probably also Sem. *'ḳu|irab- > Arabic qirb-at- (pl. qirab-āt-) 'a large skin for milk or water', Tigray ḳʷərbət, Amharic ḳorbət 'skin for milk', ḳurbət 'tanned hide used as a sleeping mat', Tigre ḳərbət 'dressed skin; skin for water\milk\honey', Ge'ez ḳʷərbābit, Amharic ḳʷərbəbiččа 'leather bag'; Ethiosemitic ⇏ Beja 'kʷərbe 'skin', proto-Agaw *ḳʷ∇rb-∇t- 'skin' > Khamir ḳʷər'bī 'skin, hide', Khamta kerbir 'skin', Kwara ḳōrbē ~ kōrbē ~ kōrbī 'skin, leather'; ? Ge'ez ḳarb 'eyelid' ||| ? East Cushitic: Tsamay garb 'skin' ||| Chadic: West Chadic: Tsagu ḳórṓpè, Wangday kʷòrıp 'bark' ¦¦ East Chadic: ? Somray kʷàbàráw 'bark' || **Indo-Eur.** *kreup- 'crust, crusted' > Celtic: Latin (⇏ Gaulish) cruppellarii 'armoured people, i.e. the Gaulish gladiators who fought in full armour' ¦¦ Old Norse hrúfa 'crust of a wound', Bavarian German Ruff 'Kruste auf rasch getrocknetem Erdreich', Old High German ge-rob > German grob 'coarse' ¦¦ Latvian krȃũpa 'scab, wart', krȃũpis 'scab', Lithuanian nu-krùpęs 'scurfy', kraupùs 'coarse'; in the IE languages the root contaminated with *(s)krep-/*(s)kerp- of another origin (> Old High German scorf, Anglo-Saxon scēorf 'scurf', Lithuanian karpa 'wart') || **Altaic**: Mongolic qoru'β'u > Class. Mong. qoruu, qorgu, Halha хуруу, Kalmuck χoryə̃ 'spot in the eye, film, cataract'.

[99] ***Ḳoẑ∇** 'to skin, to bark' > **Hamito-Semitic**: Semitic *°√ḳŝw > Arabic √qšw (past qašā, present-future -qšuw-) v. 'bark (wood), skin (a

snake)' || **Uralic** *koẑ∇- v. 'skin, bark' > Lowland & Eastern Cheremis kuδaša-, Highland Cheremis kъδaša- v. 'take off (clothes, footwear)' ¦ Permian *kuĺ- v. 'take off, bark (wood), skin (an animal)' > Votyak кыль–кiĺ- v. 'take off (clothes)', Ziryene куль– kuĺ- id., v. 'bark (wood), skin (an animal)', Yazvian kůĺ- v. 'bark, skin' ¦¦ Upper Konda Vogul kəĺt-, Upper Lozva Vogul χaĺt-v. 'peel, scutch (hemp\nettle)', Tavda Vogul kəĺantol 'chaff (of hemp\nettle)' || **Altaic:** Mongolic *qoltᵘ-sun 'bark (of a tree)' > Class. Mong. qoltusun, qoltasun, Halha холтос id.; Mongolic *qoltu- (+ deriv. suffixes) v. 'peel off' > Class. Mong. qoltul-, Halha холтлох, Kalmuck холтлх χoltəlχə, Class. Mong. qoltura, Halha холтрох id.

[100] ***Ḳ∇R∇Hp̨p̨∇** 'piece of leather (used esp. as footwear)' > **Indo-Eur.** *kerəp-/*krēp- id. > Latin carpisculum '(a kind of) shoe' ¦¦ Old Irish cairem 'shoemaker' (< **kariamos, IE *k$_{e}$rəp-), Welsh crydd (< Celtic *kaˈriɣos), Old Cornish chereor, Breton kere, kereour id. ¦¦ Old Norse hriflingr, Anglo-Saxon hrifeling 'shoe' ¦¦ Lithuanian kùrpė, Latvian kur̃pe, Prussian kurpe 'shoe' ¦ Slavic: [1] *kъrpa 'piece of cloth' > Church Slavonic **кръпа** krъpa 'textura, ὕφασμα' ('web'), Bulgarian ˈкърпа 'shawl', Macedonian Slavic крпа 'rag, shawl, towel', Serbo-Croatian kȓpa, Slovene kŕpa 'rag, patch'; [2] *kъrpъ, *kъrpь, *kъrpja '(a kind of) footwear' > Polish (dial.) kierp id., karpie 'a kind of footwear with a wooden sole', Czech (dial.) krp 'high boot', Serbo-Croatian (dial.) kȓplje 'ski', Serbo-Croatian kȓplja 'wooden hoop on shoes for walking on deep snow' ¦¦ Greek κρηπίς / κρηπίδος 'shoe' || **Ham.-Sem.**: Chadic *√krp 'footwear' > West Chadic: Tsagu kàràpátàn, Mburku kàrákə̀m 'shoe' ¦¦ Central Chadic: Daba kìráp, Kola kráp, Musgu harabág id.|| **Drau.** *ker∇pp- 'footwear (sandals, etc.)' > Tamil ceruppu, Malayalam ceruppu, Kota kevr, Toda kerf, Kannada keravu ~ kerahu ~ kerpu, Telugu ceppu 'sandal, shoe', ? Kolami, Naikri kerri 'shoe, boot', Pengo cerup, cerpu, Gondi serpum ≙ sarpum ≙ sarpo ≙ sarpu ≙ herpunъ 'sandal', Konda sepu 'shoe', Kuwi seppu ~ seppū id., cepuŋga 'sandals', Kurukh kʰarpā 'straps (without sole) crossed over and worn round the ankle'.

[101] *ṗiχ|ɣɣA 'sharp bone, sharp tool' > **Kartv.** *pχa- (or *pqa-) 'fish bone, cartilage, awn' > Georgian pχa- 'cartilage, awn', Megrelian χa- 'snake's cartilage, fish scale', Laz mχa- 'fish bone', Svan pχa- 'fish bone'; according to Klimov, the Georgian verb pχeḳ-/pχiḳ- v. 'scrape (скоблить)' belongs here as well || **Indo-Eur.** *(s)p(ʰ)ē̆i-/*(s)p(ʰ)ī̆- 'pointed (spitz), a pointed piece of wood' > Old Indian ˈsphya- 'piece of wood shaped like a sword; shoulder-blade', Khowar pʰī 'wooden spade', Prs ʃafiḥ 'oar, spade' |||| with the root-extension *-d-: Anglo-Saxon spitu, Old High German spiz 'spit (Bratspieß)', German Spieß 'spear, spit', Norwegian spita 'Pflock', spit 'point', Old High German spizzi, German Spitze id., English spit ¦¦ Latin cuspis, -dis 'point (of a spear); sting; spear, lance; spit' (< *kuri-spis) || **Uralic** *piye 'flintstone, stone' > Finnish pii 'flintstone', Finnish, Estonian piikivi id. (kivi 'stone') ||| Samoyedic *pъ|åɣ 'stone' > Tundra Nenets пэ, Obdorsk dial. pâ͡e· 'stone, glass', Forest Nenets pâ͡eɣ id., Tundra Nenets tūm-pe, Forest Nenets tup-pī 'flintstone, Feuerstein' (tū 'fire'), Somatu Enets fû, Bay Enets fu ~ pu 'stone' ¦ Taz Sölqup pü, Ketj, Tïm & Turukhan Sölqup pū 'stone' ¦ Koibal pi ¦ Mator hilä, Taigi hyla id. ||| Kolïma Yukagir pie 'Berg, Stein, Felsen' ||? **Altaic**: Tungusic: Class. Manchu fe- v. 'mow' ||| Korean pi- v. 'cut as with a sickle' ||?? **Ham.-Sem.**: Cushitic: Iraqw fɛ̄ḥ- v. 'split' ||| West Chadic: Miya ḅiɣ-, Warji ḅiɣ- v. 'stab, pierce', Kariya ḅíyà, Siryanchi ḅíyù v. 'pierce' ¦¦ Central Chadic: Logone píyà v. 'cut'.

7. Anatomy

The speakers of Nostratic had a fairly good knowledge of anatomy. The words usually do not distinguish between the human body and that of animals, but we may guess that their main interest was in the latter. In addition to words referring to easily observable and identifiable parts of the body (head, leg, horn, tail, etc.), they had special terms for inner organs and inner substances: not only 'heart' and 'liver', but also 'bile' (*piš∇), 'spleen' (*ʳṭˀäχˀ‖a~*ʳṭˀäˀ‖χa, *ˀʳä|eˀṗA), 'brain and marrow', to such details which are not usually distinguished today (by those who are not physicians), e.g. 'occiput' (*ʳgˀedi), 'sinciput' (*ṭEqmE), 'popliteal space (hollow at the back of the knee)' (*go|atḲE), 'jugular vertebra, nape' (*ṅiḲa). All this is natural for

the society of hunters, for those who used different parts of animal bodies for cooking and for manufacturing goods.

[102] ***pišV** 'bile' > **Indo-European** *bis-(t)lV 'bile' > Latin bīlis (< *bislis) id. ¦¦ Welsh bustl, Old Cornish bistel, Breton bestl id. || **Uralic** *piša 'bile' (→ 'green, yellow') > Erzya Mordvin piže, Moksha Mordvin piža 'green, copper' ||| Samoyedic *pъtä 'bile' > Tundra Nenets пăдяй, Forest Nenets paćă̄, Nganasan fate ≙ hotɨ, Enets poбe id. ¦ Taz Sölqup pat 'bile', patɨ́ 'yellow, green, blue', Tim Sölqup paˑd_, Chaya Sölqup pače 'bile'¦ Kamassian pʻåda, Koibal пода 'bile' ¦ Mator хадыде 'his\its bile'|| **Dravidian** *picc- 'bile' > Tamil piccu 'bile, madness', Malayalam piccu, Kota puc, Kannada peccu, paccu, puccu, Telugu picci, picca 'madness', Toda püc 'anger', Naiki pisak 'mad'; Drav. ↛ Old Indian pitta- 'bile'.

[103] ***ʳṭˀäχlǀa~*ʳṭˀälǀχa** or ***ʳṭˀaχlǀE~*ʳṭˀalǀχE** 'spleen' > **Ham.-Sem.**: Sem. *ṭiħāl- id. > Middle Hebrew טְחוֹל ṭəˈḥōl, Jewish Aramaic, Syriac ṭəḥāˈl-ā, Arabic ṭiħāl- 'spleen'; Semitic *ṭulħīm- 'spleen' > Akkadian ṭulīmu, Mehri, Harsusi ṭɜlˈḥaym, Jibbali ṭɛlˈḥim id.|| **Altaic** *tāǀālV > Turkic *tˌ_āl 'spleen' > Old Uighur tāl, East Turkic tal, Yakut tāl id.; der.: Turkic *tˈāl-ak (~ ¿*täläk) id. > Turkish dalak, Gagauz dalak, Azeri dalaɣ, Tebriz Azeri däläʁ, Türkmen dālak, Qazaq, Volga Tatar, Bashqurt talaq, Uzbek talɑq ||| Mongolic *deli-kün > Class. Mong. deligün, Middle Mongolian delgün ≙ deliʔün, Halha дэлүү(н), Buryat дэлюу(н), Kalmuck delün ≙ delũn, Monguor d_iliũ, Dagur delkin; Ancient Mongolian *deli-kün ↛ Classical Manchu delixun ~ delyaχun, Ewenki dɜlkin, Solon dɜlkĩ; Middle Mongolian *deligün > Ude dɜligi || **Kartvelian** *ṭqirp- 'spleen' > Georgian ṭqirp-, Megrelian ṭqip- id.

[104] ***lʳäǀeˀpA** 'spleen' > **Ham.-Sem.**: East Cush.: Afar aleˈfū [pl. aˈlef-it] 'spleen' ||| West Chadic: Sura ǰlap, Kofyar lap, Montol, Angas lap 'spleen' || **Uralic** *läppV (or *leppV) > Finno-Ugric: Cheremis lepə≙lep ¦ proto-Permian *lɔp > Votyak lup, Southwestern Votyak lup, Ziryene lop / lopt-, Upper Sïsola Ziryene lɔp, Yazvian lop ¦ Lappish **ðapðe (by assimilation from *lap-ðe with a suffix -ðe) > Norw. Lapp dawˈde ≙

daď've, Southern Lapp daabrie, Ume Lapp hàb'dee, Lule Lapp tab'tē, Skolt Lapp täb'dd, Kildin Lapp тāммьп tām̄^{b}p(ă_) ¦¦ Teryugan Ostyak ɬă̆pətne ¦ Hungarian lép ||| Samoyedic: Forest Nenets ɬapśə ≙ rab'śə id. || **Altaic:** Tungusic: Orok lipče 'spleen'.

[105] *ṭEqmE 'sinciput, crown of the head, top, tip' > **Ham.-Sem.**: Sem. *°√ṭχm > Arabic ʔaṭχam- 'anterioris pars nasi (in homini et iumento)' ||| Cush.: Agaw **dVmVh > Awngi dūmī 'top', Agaw ⊬ Ge'ez dəmāh [dəmaħ] 'head, sinciput, summit' (unless < Sem. *dimāɣ-, cf. Arabic dimāɣ- 'brain') ¦¦ ? East Cush.: Oromo ḍuma (nom. ḍum-ti) 'end' || **Kartv.** *°t'q'em- (or *°t'q'ēm-) > Old Georgian tχem-i 'sinciput; top of the hill', Georgian tχem-i id. ('Scheitel, Gipfel') || **Indo-Eur.** *°teHmn̥ > Narrow IE *°tēmn̥ > proto-Slavic *těmę / těmen- 'crown of the head' > Serbian Church Slavonic, Old Russian тѣмѧ těmę̃ / тємєн- temen- id., 'skull', Russian 'темя, Ukrainian тім'я, Polish ciemię, Serbo-Croatian tjème 'crown of the head', Czech témě, temeno id., 'summit' || **Altaic:** Mong. *teme-sün > Class. Mong. teme-sü 'edges of a net; border or hem of a mat' ||| Tungusic *temV ~ *tuŋE 'sinciput, crown of the head' > Ilimpeya Ewenki tɜmulkɜn ~ timulkɜn, Ewenki of Podkamennaya-Tunguska & Yerbogachen tuŋulkɜn 'sinciput, skull', Solon tumulkī, Lamut tɜŋɜlɜk ≙ tuŋɜlək, Arman Lamut tuŋɜk ~ tɜŋɜk, Ude tɜmugɜ, Orochi тумаха, Sibe Manchu tuŋun 'sinciput'.

[106] *'g'edi 'occiput; hind part' > **Altaic:** Mong. *gede ~ *geʒi (< *gedi) 'nape of the neck, occiput, hind part' > Class. Mong. gede id., Class. Mong. geʒige, Halha гэзэг 'nape of the neck, plait\braid of hair, pigtail, queue', Buryat гэзэгэ 'plait of hair', Western Buryat гэзэгэ 'occiput'; Middle Mong. gedergü, Monguor g_id_i͡erg_u ≙ gedergu 'backwards'||| Tungusic *gedi 'occiput' > Ewenki gɜdimuk ≙ gɜdɜmuk, gɜtkɜn id., Lamut gɜdɜkɜ, gɜdɜmɜk ~ gɜdəmək id., 'occiput bone', Negidal gɜdɜmuk, Ulcha gɜki(n-) 'occiput', Ude gɜdigɜ id., 'nape of the neck' ||| ? Turkic *KEδi-n 'backwards' > Old Turkic, Chaghatay käδin 'behind', Khakas кизін kɪzin 'hind' (adj. of animal's legs, wheels, etc.), Sagay, Koibal Turkic, Kachin kezin, Küerik, Shor käzin 'hind part, backwards', adj. 'hind', Qazaq kein

'behind', Yakut kätäχ 'occiput' || **Ham.-Sem.**: Chadic: Sura ǯɛt, Kofyar ǯɛ̀t 'occiput' ||| Cush.: Agaw: Khamta gīd 'hind' ¦¦ East Cushitic: Sidamo gidensa, gedensa 'after', gedensa 'last, the end', gedensanni, gedensā 'afterwards', Somali gadāl 'behind' ('dietro, indietro') ||| ? Omotic: Gofa gedo 'hind part' || ? **Kartv.**: Georgian ked- 'occiput', ?? Megrelian kindir id.

[107] ? *go|atḴE 'popliteal space (back of the knee), armpit' > **Ham.-Sem.**: Sem. *✓ɣtḳ > Central Jibbali ɣaṭˈḳet (pl. ˈɣeˈṭɔḳtɜ), Eastern Jibbali ɣatˈḳet 'popliteal space', Mehri ɣɜtˈḳayt (pl. ɣɜtɜḳtɜn) 'hollow at the back of the knee' ||| ? Egyptian ḥcc.t 'shoulder (Achsel), armpit' || **Altaic** (acc. to Starostin) *ok'▽ 'popliteal space, armpit': Middle Korean ȍkóm, Phyöngyang Korean ogɨm 'popliteal space', Kangwöndo Korean oɣumpe͂ 'knee' ||| Mong. *ogu-da-sun 'armpit gore of clothes' > Class. Mong. ogudasun id., Kalmuck oɣᵒ̊dɒsŋ̊, ogdᵒ̊sŋ̊ 'Ärmelzwickel' || ?? **Indo-Eur.**: Narrow Indo-Eur. *aks- (and/or *ok-?) 'armpit' > Old Irish ochae 'hollow of the armpit' (suggests lE *°ok- without *-s-?) ¦¦ Germanic: Old High German uochisa 'armpit'; with a *-n-suffix: Old High German uochsana, Anglo-Saxon ōxn 'armpit'; with a *-t-suffix: Anglo-Saxon ocusta, ōxta, English oxter 'armpit', Old Norse óst, óstr 'throat-pit' ('Halsgrube') ¦¦ ?ψ Latin axilla 'armpit' (with a demin. suffix -illa); metathetic variant ascilla id.; ↭ Old Irish oxal 'armpit' ¦¦ Armenian anutʰ (< *asnutʰ) 'armpit' |||| cf. also a similar word *aks-el- for 'Achsel, shoulder': Latin āla (< *aksla) id. ('wing') ¦¦ Old Norse ǫxl, Anglo-Saxon eaxl, Old High German ahsala > German Achsel 'shoulder' ¶ The connection between *aks- 'armpit' and *aks-el- 'shoulder' is not clear (derivation or semantic change, and if so, in which direction? or secondary semantic association between originally unrelated stems?) ¶¶ The IE cognate is valid if Nostr. *tḴ may yield IE *ks or IE *-s- is a suffix.

[108] *ńiḴa 'jugular vertebra, neck, nape of the neck' > **Indo-European** *knok(k)- > Old Norse hnakki, hnakkr 'Nacken', Old High German hnac / hnackes 'Nacken, Gipfel', Middle High German genicke 'Genick', Anglo-Saxon hnecca 'Nacken, Hinterkopf', English neck ¦¦ Celtic: Old Irish cnocc 'protubérance, colline, mont', Irish cnoc, Welsh

cnwch 'protubérance', cnwch y gwegil 'la bosse de la nuque', Old Breton cnoch 'tumulus', Middle Breton knech, Breton krec'h, kreac'h 'hill' || **Uralic** *ńika 'vertebra, joint [of a body], neck, nape of the neck' > Finno-Ugric *ńika > Finnish nikama 'vertebra, node of a stalk' ¦¦ Hungarian nyak 'neck' ¦ Tavda Vogul näk, Northern Vogul nak 'node of a stalk, joint'; Kazïm Ostyak ńăk id. ||| Samoyedic: Taz Sölqup nukɨ 'collar-bone', Narïm Sölqup nug, Ketj Sölqup nukka 'occiput' || **Altaic** (according to Illich-Svitych) *ńika 'neck, vertebra' > Mongolic *nigur-sun 'spinal marrow, spinal cord' > Class. Mong. nigursun, Halha nigars(an), nigas, Kalmuck нүһрсн nuɣə̊rsŋ̊ 'spinal marrow', Shira-Yughur nurɣusan 'marrow' ||| Tungusic *nik-, *nikin- 'neck' > Barguzin Ewenki nikin 'neck, vertebra of the neck', Ewenki nikinma ~ ńikinma ≙ nikimńa ~ ńikimńa ~ nikimna ~ ńikimna ≙ nikimŋa id., Chumikan Ewenki nikin 'throat', Solon mixama ~ nixima 'neck', Lamut ńɪqъn ≙ ńɪkъn ≙ ńikan 'back of the neck, vertebra of the neck', Negidal nɪxma ≙ nikimna ≙nɪkma 'neck, vertebra of the neck', Ulcha ńɪqɪ(n-) id., 'back (dorsum)', Orok nɪqɪ(n-) 'neck part of a fish head', nɪqɪmńa 'neck of a reindeer', Class. Manchu niqde 'a concave curve on the horse's back (between the mane and the front part of the shoulder-blades); nape' ||| ? Turkic *jaka 'collar' > Old Turkic jaqa, Turkish yaka, Azeri jaχa, Türkmen, Volga Tatar jaqa, Qazaq, Qaraqalpaq žaɣa, Nogay jaɣa, Qïrghïz žaqa, Altay jaqa, Uzbek jɑqa, Yakut saɣa, Chuvash çyxa śѡxa 'collar'.

8. Kinship

It is known that kinship terms reflect the family structure within any given society. The kinship terms in Nostratic reflect exogamy, the division of the society into two exogamous moieties. Among the kinship terms we can see a clear-cut distinction between those referring to ego's own moiety and those of the other moiety.

Some kinship terms for the other exogamous moiety: *käl̆u|ü 'a woman of the other moiety (of the same age or younger than ego)' (in the descendant languages the word denotes either a bride, or a female relative-in-law, or both), *küda 'male relative-in-law (of the same generation or younger than ego)', *śeʒA 'a male relative of the other moiety' (in the descendant languages: 'father-in-law', 'son-in-law', 'mother's brother', and sim.), *ˌẖ|χ ∇ˌwäṅ|n ∇

'relative [of a younger\the same generation] of the other moiety'. The word *n|ĥu|üśV (or *n|ĥu|üsyV) means 'woman of the other moiety', as well as 'woman' (general term).

Kinship terms for members of ego's moiety: *Hić|cχV (or *-ć|c̣-. *-ɣ|g|h-) 'father, head of a family', *ʔediNV 'pater familias' (or 'owner'?), *ʔarV 'member of the clan, of the family'. The reconstruction of such kinship terms meets with difficulties for two reasons:

(1) Kinship terms for 'father', 'elder brother', 'elder sister', etc. (just as words for 'mother') often happen to be nursery words (as *ʔaba ~*ʔaḇa 'daddy, father', *ʔemA and *ʔʳäˡyV 'mother', *ʔaqa 'elder brother' [> Sem. *ʔaχ-]), which are built according to the same phonetic models (VCV and C_1VC_1V: aba, eme, ata, mama, papa, tata, nene and sim.) throughout the world (due to phonetic restrictions caused by the limited articulatory and auditory abilities of little children), so that phonetic similarity between such words in different languages is not necessarily due to their common origin: Gothic atta 'father' and Slavic *ot-ьcь 'father' are not cognates because Gothic t is not the etymological counterpart of Slavic *t.

(2) In the opposition 'the other moiety' vs. 'one's own moiety' the latter is unmarked. More than that, in words denoting relatives of one's own moiety the semantic feature 'kinship term' is unmarked, too. Therefore there is often no distinction between 'son' and 'boy', between 'daughter' and 'girl' (even in English: child is both a kinship term [his child] and a word denoting age without reference to kinship). This is true about certain proto-Nostratic words, too (e.g. *ʕoguɬ]V 'child, one's child, to beget, to bear a child').

[109] ***käluü*** 'a woman of the other exogamous moiety' ('female relative-in-law', 'bride') > **Ham.-Sem.**: Semitic *kall-at- 'daughter-in-law, bride' > Biblical Hebrew כַּלָּה kalˈlā id., Jewish Aramaic כַּלְתָּא kallaˈṯ-ā, Syriac 'kallaˈṯā, Akkadian kallātu, (Assyrian dial.) kallatu ~ kallutu id., Ugaritic klt 'Braut, mannbare Tochter', Sabaic ḥklln (inf. of the causative verb) 'to marry (a girl)', Mehri kɜlōn, Jibbali ˈkɜˈlun 'bride, bridegroom', Harsusi kɜlōnɜt 'bride', kɜlānīn 'bridegroom', Soqotri ˈkɜlan 'bridegroom' || **Kartvelian** *°kal- 'young woman, maid' > Old Georgian kal-i 'maid', Georgian kal-i 'woman, daughter', (čemi \ šeni \ misi) kal-i '(my\your\his) wife' || **Indo-European** *ǧ̰lōw-/*ǧ̰lōw- 'brother's wife' > Greek γάλοως, Attic Greek γάλως 'husband's sister, brother's wife, sister-in-law' ¦¦ Latin glōs (secondary reinterpretation as an -s-stem, hence gen. glōris) ¦¦ Phrygian [Hesychius] γέλαρος 'brother's

wife' ¦¦ Slavic *zъlɨ (gen. *zъlъve) 'husband's sister' > Church Slavonic ꙁълъва zъlъva, Serbo-Croatian zȁova; der.: Russian зо'ловка id.‖ **Uralic**: pre-proto-Uralic (acc. to Collinder) *kälü (but *kälV-wV, acc. to Itkonen and Rédei) 'female relative-in-law' > Finnish käly 'daughter-\sister-in-law' ('Schwägerin, Frau des Bruders, Schwester des Mannes od. der Frau'), Estonian käli, (dial.) kälü 'husband's brother, husband's brother's wife' ¦ proto-Lappish *kālɔ̄y- 'daughter-in-law, sister-in-law', *kālɔ̄y-ɛ̄nnē [*ɛ̄nnē 'mother'] 'sister-in-law' > Southern Lapp gaalluo-, Lule-Lapp kālō-ji(e)tnē 'wife of husband's brother or cousin', Norw. Lapp gālo-jædne 'sister-in-law' (of husband's brother's wife) ¦ proto-Mordvin *kāla > Moksha-Mordvin кел ке́l 'Schwägerin', (dial.) kiyal id., Erzya-Mordvin ке́iyalo кия́ло 'ianitrices (wives of brothers)' ¦ Permian *keli 'wife of husband's brother' > Udor & Luza Ziryene kev, Sïsola & Letka Ziryene kel, Kochevo Permyak, Yazvian kelya id., Northern Votyak kaĺi 'wife of husband's brother (older than ego)' ¦¦ Teryugan Ostyak kiɬi 'wife's sister', Krasnoyarskiye Ostyak kita 'daughter of wife's younger brother'; in Ostyak there is contamination of this root and the reflex of Nostr. *küda 'male relative-in-law', whence Teryugan Ostyak kiɬi, Obdorsk Ostyak kili 'husband of wife's sister'; Sosva Vogul kil 'wife's sister' ||| Samoyedic *kelъ 'relative-in-law' > Tundra Nenets śēɬ, Forest Nenets śi̯e·ɬ 'wife of husband's brother, husband of wife's sister', Somatu Enets séɬiˀ, Bay Enets séri 'Schwager', Nganasan śaluŋ, sealuŋ 'Schwager (die Männer zweier Frauen)', Taz Sölqup šelɨ 'husband of wife's sister', Narïm Sölqup šäl 'свояк, Schwestermann, Mann der Schwester des Mannes, Schwager' ||| Yukagir: Tundra Yukagir kelil 'the wife of the wife's brother or male cousin; the wife of the husband's brother or male cousin; the husband of the wife's sister or female cousin; the husband of the husband's sister or female cousin'‖ **Altaic** *kälin 'female relative-in-law, bride' > Turkic *k̑älin 'bride, son's wife' > Old Turkic kälin id., Chaghatay kelin, Old Xwarazmi Turkic kälin, Cuman kelin, Azeri ǧälin, Qarachay-Balqar gelin 'bride', Turkish gelin, Qazaq келін kelı̄n 'bride, son's wife', Qaraqalpaq kelin, Volga Tatar килен kilьn 'son's or young brother's wife; young woman', Türkmen, Gagauz gelin 'bride, son's wife, young married woman', Nogay kelin, Bashqurt kilьn, Khakas килін kilı̄n

'son's wife', Uzbek, Qïrghïz, Standard Altay kelin id., 'young married woman', East Turkic kelin 'son's wife, bride', Sarï-Yugur kelın ~ kʻelın ~ kʻelin 'bride, wife', Tuva kelin 'son's\younger brother's wife', Chuvash kin id. ||| Tungusic *kelin > Ewenki kɜlin, Urmi Ewenki kɜli, Lamut kɜli (pl. kɜlin-il), Orochi, Nanay kɜli, Ulcha, Orok kɜli / kɜlin- 'husband of the wife's sister', Negidal kɜli 'husband of a woman from wife's clan', Class. Manchu keli 'husband of wife's elder sister', 'brother-in-law', хехе keli 'wife of the husband's brother' (хехе means 'woman') || **Dravidian**: Northern Drav. *kall$_{ɪ}$i$_{ɹ}$ 'female relative-in-law' > Kurukh ϰallī 'father's younger brother's wife', Malto qali 'mother's sister' ◇ The meanings 'bridegroom', 'male relative-in-law' are demonstrably secondary and are due either to broadening of meaning (by eliminating the semantic element of female sex) or to back formation (as in Harsusi).

[110] ***küda** 'a man of the other moiety' (→ 'male relative-in-law') > **Uralic** (according to Illich-Svitych) *küδü > Finnish kyty 'husband's\wife's brother', Veps küdu, Estonian kŭdi, (dial.) kŭdŭ 'husband's brother' ¦¦ Ob-Ugric: proto-Ostyak *kū̆lᐁ 'wife's sister's husband' ('wife's [younger] sister') > Obdorsk Ostyak kili 'wife's sister's husband', Vakh Ostyak küli id., niŋ-küli 'wife's sister' (niŋ- means 'woman'); in Ostyak there is contamination of this root and the reflex of Nostr. *kälu|ü 'a woman of the other moiety', whence Teryugan Ostyak kiɬi, Kazïm Ostyak kĭɬi 'wife's sister's husband, wife's sister' || **Altaic**: Turkic kˉüδä-gü 'younger sister's husband, daughter's husband' (-gü is an adjectival suffix) > Old Turkic küδä$_{ː}$-gu, Chaghatay küyäv, Cuman küyägü 'daughter's husband', Old Qïpchaq küyägü, Xwarezmi Turkic küδägü 'bridegroom', Turkish güvey, Gagauz güvä, Türkmen, Qumuq, Nogay giyew, Uzbek куёв kuyow, Volga Tatar кияү kiyäw̆, Bashqurt кейәү kьyäw̆, Qaraqalpaq küyew̆, Qïrghïz küyȫ, East Turkic küyoɣul 'daughter's husband, bridegroom' (East Turkic oɣul means 'son'), Qazaq küyew̆ 'bridegroom', Standard Altay küyü, Khakas kizö, Tuva күдээ küdā 'daughter's husband', Chuvash kərü (gen. kərəv-ən) id., 'bridegroom' ||| Mongolic *quda 'father of one's son-in-law or daughter-in-law' (in pl.: 'the heads of two families related through the marriage of their children') >

Middle Mongolian ɣuda id. ('verschwägert, Schwager'), Class. Mong. quda, Halha худ, Buryat худа, Monguor g̊ud̄ā id., Kalmuck χudъ̊ 'people related through the marriage of their children' || ? **Kartvelian** *kwiṣ̀-al- / *kwiṣ̀-i̯- 'wife's sister's husband' > Georgian kvisl-, Georgian (Mtiuluri & Mokheuri dialects) kviseli, Megrelian kvišil-, Svan me-kwš̌-ēl, Lentekh Svan mo-kwš̌-äl ¶¶ According to sound laws we expect Kartvelian *kwid-. The observed Kartv. stem *kwiṣ̀-al- may have originated from the genitive **kwid-iṣ̀- + suffix *-al- (with a cluster simplification *-dṣ̀- > *-ṣ̀-).

[111] ***śeʒA** 'a relative of the other moiety' ('father\son-in-law', 'mother's brother', and sim.) > **Kartvelian** *siʒe- 'son-in-law' > Georgian siʒe-, Megrelian si(n)ža- ≙ sinda id., Laz siža- id., 'bridegroom', Svan čīže 'son-in-law' || **Ham.-Sem.**: Cushitic: East Cush. *s∇z- 'relative-in-law' > Somali sóddog 'father-in-law', sóddóh 'mother-in-law', Rendille seyyoh ~ soyyoh 'mother-in-law', seyyóh 'father-in-law', proto-Boni *sìddáh 'mother-in-law', 'sister-in-law' > Boni siddah ≙ soddóh id., Oromo sodd-a 'in-law' (↮ Arbore soddá id.), Arbore soh id., Gollango soqo 'son-in-law' ||| ?ϖ Egyptian sʒ.ty 'Kind, Zögling' || **Uralic** *ćečä 'uncle' > Finnish setä 'father's brother', ? Estonian (dial.) sedi 'mother's brother' ¦ proto-Lappish *ćēcē 'father's brother' > South. Lapp tjiedsie, Lule-Lapp tjiehtiē, tjāhtiē, Norw. Lapp čæcce, Kildin Lapp čiečč 'father's younger brother' ¦ Erzya-Mordvin čiče 'elder brother-in-law (sister's husband)', Moksha-Mordvin ščava ~ śćava 'mother's mother', ščáťa 'mother's father' ¦ proto-Cheremis *čüča ~ *čečä > Lowland Cheremis чӱчӱ čӱčӱ, Highland Cheremis чӹчӹ čəča 'mother's brother', East. Cheremis ćüćö ~ tūćö ¦ proto-Permian *čɔž 'mother's brother' > Ziryene чож ćož, Letka & Udor Ziryene čož, Votyak ӵужмурт čužmurt id., ӵужбубы čužbubɨ 'mother's father' ¦¦ Lower Konda & Sosva Vogul šäš, Sosva Vogul sasiɤ 'uncle', Pelïmka Vogul šäššə-m 'my uncle' ||| Samoyedic *cicä 'mother's younger brother' > Tundra Nenets тидя, Obdorsk dial. ćiḋe, Nganasan (der.) tɨtiḋa, Taz Sölqup ti'tä 'mother's younger brother' ¶¶ In the prehistory of Uralic we may suppose an assimilation and dissimilation of sibilants: ≈ *śeʒA > **ćecA > *ćečä.

[112] *ˌħ|χ∇ˌwänˀ|n∇ 'relative [of a younger\the same generation] of the other moiety' (> 'brother/sister-in-law, son-in-law') > **Ham.-Sem.**: Egyptian ḥwn 'boy, young man; (one's) child, son', ḥwn.t 'girl, virgin', ḥwn v. 'become young' || **Uralic** *wäN∇ > [1] Finno-Ugric *wäŋü 'daughter's husband, younger brother' > Finnish vävy, arch. väy 'daughter's husband', Estonian väi id. ¦ proto-Lapp *vivɜ id. > Norw. Lapp vivvâ id. ¦ Moksha Mordvin ov id. ¦ Highland Cheremis wiŋɤa, Eastern Cheremis weŋe id.||| Samoyedic *wänъ 'relative-in-law' > Tundra Nenets yiy, Forest Nenets wiy 'younger relative's husband', Enets bī 'brother-in-law, sister's husband', Nganasan biŋi,-n 'daughter's husband', Taz Sölqup kuenä, Narïm Sölqup kuenek, Karasino Sölqup kuenaŋ 'wife's brother', Tïm Sölqup kuan·åg_ 'svåger, svägerska', Lower Taz Sölqup kʷɜnåg_ 'stepson, sister's husband' |||| ? Ural. *want∇ 'bridegroom, relative-in-law' > Kildin Lapp vūntem 'Freier, Bräutigam' ||| Samoyedic: Tundra Nenets yanneʾ, Forest Nenets wennīʾ 'relative-in-law (durch Heirat verwandt, verschweigert)' || **Altaic**: Tungusic *bene- 'wife's sibling' > Ewenki bɜnɜr, Zeya & Sïm Ewenki bɜnɜ 'wife's brother, wife's younger sister', Lamut benər 'wife's\husband's younger sibling', Negidal bɜnɜ 'wife's younger sibling', Orochi bɜnɜ id., 'wife's younger sister's husband', Ude bɜnɜ, Ulcha bɜnɜli, bɜnɜr 'wife's younger brother', Nanay bɜnɜr- 'wife's younger male cousin; nephew' || ?? **Drav.** *vanna '(elder) brother's wife' > Kolami vanna 'brother's wife', ? Pengo oni 'elder brother's wife', ? Konda oni id., 'maternal uncle's daughter (older than person concerned)' (unless the word of the Drav. languages is a loan from Prakrit vahuṁṁī 'husband's elder brother's wife').

[113] *n|ṅu|ŭś∇ or *n|ṅu|ŭsy∇ 'woman' (general term), 'woman of the other moiety' > **Hamito-Semitic**: Semitic *niš- 'woman' (used in pl. and with pl. endings only) > Arabic nis-ūna 'women', nisāʔ- id. (and through metanalysis: √nsw, whence niswān-un 'women', nisw-at-un ~ nusw-at-un 'woman'), Syriac nɛš(š)-ē 'women', Hebrew נָשִׁים nāˈš-īm (*ā < *a, an apophonic *a-plural from *niš-, cp. *ban- 'sons' — a plural stem correlating with *bin- 'son'), Akkadian niš-ū 'people' (-ū is a pl. marker; semantic contamination with *ˈʔi̯naš- 'person' — *ʔunāš- 'people') ||| Cushitic: proto-

Agaw *ˁn̥ˀs-at- 'woman' > Bilin ūˀs-ʌrī adj. 'female', pl. ūˀs-aw ~ úˀs-ō, Khamir ˀōs-rē id. ||| Central Chadic: Mandara gr.: Dghwede nı́šè, Gava núsà, Guduf nɔ́sʌ̀, Glavda nùsà 'woman' ¦ Tera nušu id. || **Kartv.** *nusa 'son's wife' > Laz nusa, Megrelian nosa id., Old Georgian nusa-dia 'uncle's wife' (lit. 'grand daughter-in-law') ¶¶ The Kartv. word may be either a loan from IE or an ancient Kartv. inherited lexeme. In the latter case *nusa must go back to pre-Kartv. **nuśV < **nuśya < **nusya < *n|ńuysa or *n|ńüysa || **Indo-Eur.** *snuso-s 'son's wife' > Crimean Gothic schnos, Old High German snur, Anglo-Saxon snoru, Old Norse snor ~ snør id. ¦¦ Greek νυός id. ¦¦ Armenian nu id. ¦¦ Latin nurus, -ūs id. (morphological reinterpretation on analogy with socrus, -ūs 'mother-in-law') ¦¦ Old Indian snuˈṣā 'son's wife' ¦¦ proto-Slavic *snъxa id. > Old Church Slavonic снъха snъxa, Russian сноˈха ¦¦ Albanian nuse 'bride' ||| ?? Hittite nasarti/a- 'concubine'. ¶¶ The unexpected initial *s may be explained by phrasal metanalysis: in phrases *...-(o)s nuso-s '(somebody)'s son's wife' (where *-(o)s is the genitive ending of the preceding noun) *-s was reinterpreted as belonging to the following noun: *...-(o)s nuso-s > *...-(o)s snuso-s.

[114] ***Hić|cχV** or ***-ç̌|ç-**, ***-ɣ|g|h-** 'father, head of a family' (→ or ← 'master, lord') > ? **Ham.-Sem.**: Semitic: Ge'ez ʔəgzīʔ 'lord' (? ⇹ Ge'ez √gzʔ v. 'dominate, master') || **Indo-European**: Hittite isxa ~ esxa 'master, lord' || **Uralic** *ićä 'father' > Finnish isä, Estonian isa id. ¦ proto-Lappish *ɜćē 'father' > North. Lapp ačˈče, Skolt Lapp eč̄č̄ˈ, Kildin Lapp ėǯčˈ, Ter Lapp yīeččе id. ¦ Highland Cheremis ɜzä, Ufa Cheremis iza, Malmïzh dial. iźa 'elder brother; father's younger brother' ¦¦ Lower Konda & Pelïmka Vogul ǟś 'mother's brother' ¦ Old Hungarian ős 'grandfather', Hungarian ős 'ancestor' ||| Samoyedic *eysä 'father' > Tundra Nenets нисяˇ, Forest Nenets ńīēs̄:əǟ, Nganasan jase, ˈдесы, Enets ese, Taz Sölqup ɜsɨ id. || **Altaic**: Turkic: Sarï-Yughur ise 'owner, master (хозяин)' ||| Mongolic *eзen 'lord, master' > Middle Mongolian eǯen 'seigneur, maître; Herr', Class. Mong. eǯen, Halha эзэн 'lord, master, ruler, owner'.

[115] *ʔediN∇ 'pater familias' (or 'owner'?) > **Ham.-Sem.**: Semitic *ʔadān- 'lord, pater familias' > Hebrew ʔāʾḏōn 'lord', Phoenician ʾdn ʔadōn (> Greek Ἀδων-ις), Punic ʾlʾdwn (with ʾl- 'to') 'to the lord', Ugaritic ʔ$_u$dn, [in Akkadian script] adānu 'father', der.: Eblaite a-da-na-du ʔadāntu(m) 'signoria, padronanza', with the feminine suffix *-at-: Phoenician, Palmyrian ʾdt (<*ʔadattu < Semitic *ʔadān-atu) 'lady' ||| Egyptian ỉdnw 'Vertreter, Verwalter', ỉdn 'vertreten, verwalten' || **Altaic** *edin 'master, lord, owner' > Turkic *eδi 'lord, host' > Old Turkic iδi 'lord', [Qutadgu Bilig] idä id., Qïzïl ãzi 'Chinese emperor', Lobnor idi 'host'||| Mongolic *eǯin (< *edin) > Middle Mongolian eǯen 'owner, lord, ruler, master', جيئو eǯin-ü '(of the) owner', Class. Mong. eǯen, Halha eǯen 'owner, lord', Kalmuck eǯŋ id., Dagur əǯin 'lord, master, owner, king' ||| Tungusic *edin 'husband' > Ewenki, Negidal ədī, Lamut, Orok ədi, Ulcha ədi(n-), Nanay əǯi id., Orochi ədi 'male animal, husband'.

[116] *ʔemA 'mother' > **Hamito-Semitic**: Semitic *ʔimm- id. (pl. *ʔimmāʾh-āt-) > Hebrew אֵם ʾem / -אִמּ ʔimm- (ʔimʾm-ī 'my mother'), pl. ʔimmāʾhōṯ, Phoenician ʾm, Ugaritic ʔ$_u$m *ʔumm-, pl. ʔ$_u$mht, Jewish Aramaic, Syriac ʾimʾm-ā, Arabic ʾumm-, Epigraphic South Arabian ʾm, pl. ʾmht, Ge'ez ʔam, Mehri ḥ-ām, indef. ʔēm, Harsusi ḥ-ām, Central Jibbali ʾʔɛm, Soqotri ʾem- (with pronominal suffixes), Ge'ez ʔamm, pl. ʔammāt, Akkadian ummu(m) 'mother' ¶ The variant with u is due to the assimilating influence of mm ||| Berber ≈*yimmā 'my mother' > Kabyle, Beni-Menacer, Jerba, Sened yamma, Ghadamsi yamma ~ imma, Tashelhit yĕmma ~ imma, Beni-Snus, Beni-Iznasen, Rif, Srayr Senhazha, Kabyle imma 'my mother'; the form *yimmā may go back to *y- 'my' + *ʔimm∇ 'mother' ||| ? Highland East Cush. *ama > Burji amá ~ āmá 'mother, woman, wife', Darasa, Sidamo, Alaba ama, Hadiya ama, amoʔo 'mother', ama(ti) 'mater familias', Kambatta amata, amayye (vocative) 'mother' ¶ This Highland East Cush. word may be an independent Lallwort without etymological connection with the Semitic and Berber words ||| ? Chadic: Central Chadic: Margi ámà, Kilba ama, Wamdiu umà ¦¦ East Chadic: Kera àmá 'mother'; this Chadic word may likewise be an independent nursery word || **Uralic** *emä 'mother, female' > Finnish emä 'female, mother, womb', emäsika 'sow',

Estonian ema 'mother, womb', proto-Lappish *ɛ̄mē 'womb' > South. Lapp yiemie id. ¦¦ Old Hungarian eme 'female (animal), Hungarian (dial.) eme (acc. emét) 'sow', der.: Hungarian embër 'person', (dial.) 'man' ||| Samoyedic *emä 'mother' > Tundra Nenets небя ńēb_e·, Forest Nenets ńeḿe, Somatu Enets ɛ̄, (+ pron. suffix 1 sg.) ɛ̄b_ō, Nganasan ńame ¦ Taz Sölqup эmɨ, Lower Taz Sölqup ämä, Turukhansk Sölqup ɜ̄mɨ 'mother'¦ Koibal имадь, Mator иммеда 'his mother', имамъ 'my mother', Taigi емма, emme 'mother' || **Altaic** *eme 'mother, woman, female' > Turkic *ämä 'mother, female' (> 'old woman') > Qïrghïz eme 'old woman', Chuvash ama 'mother, female' ||| Mongolic *eme 'woman, female' > Middle Mongolian eme, eme gü'ün 'woman, wife' (gü'ün means 'person'), Class. Mong. eme 'woman, wife, female', Halha em 'woman', Buryat eme id., Class. Oirat eme 'woman, female, lady', Dongxiang эmɜ(kun), Baoan эmɜ (kuŋ) 'woman', Monguor imu in χara imu ('black woman'), ritual name given by a girl to herself in front of her parents the day of her marriage, Dagur emehe aw- 'to marry (a woman)' ||| Tungusic *em^{r}e^{1} 'mother, woman, female' > Ewenki эmugdɜ 'female elk', Solon e'mo 'mother', emɪ'ge 'wife', Kur-Urmi Nanay эmхɜ 'mother-in-law', Class. Manchu eme 'mother', emxe 'wife's mother', emeke 'husband's mother', Sibe Manchu eme 'mother', emχe 'husband's mother', emhe 'wife's mother' ||| Korean: Middle Korean ám, Phyöngyang Korean am ◇ Words shaped as a(m)ma in individual IE languages (Old High German amma 'mother', Old Norse amma 'nun', Gheg Albanian 'amë 'mother'), Elamite am-ma 'mother' and Drav. *amma 'mother' (> Tamil ammā, Malayalam, Kannada, Telugu, Tulu amma, Kolami amma, Brahui ammā 'mother', Konda ama 'grandmother', Pengo, Manda, Kui ama 'father's sister', Kuwi amma 'aunt') are unlikely to belong here, they are better explained as independent Lallwort-creations.

[117] *ʔ^{r}ä^{1}y∇ (or *h^{r}ä^{1}y∇?) 'mother' (originally a nursery word) (→ 'female'): **Ham.-Sem.**: Cushitic *ʔay(y)- > East Cushitic *ʔāyy- 'mother' > Somali āy-o 'stepmother', Rendille 'áy-o 'mother' (vocative), Boni ā'y-ô, Baiso ā ~ āy-o, Oromo āyy-ō, Konso āy-ā 'mother', Saho āy-a 'older sister', Hadiya ayy-a 'sister', ay-minē 'mater familias', Burji āy'y-ē 'mother,

mother's sister, father's brother's wife' ¦¦ South Cushitic: Iraqw ayo, Alagwa, Burungi iyo 'mother' || ? **Indo-Eur.**: proto-Germanic *aⱺθī 'mother' > Gothic aiþei id., Old Norse eiðа id., Old High German fuotar-eidī 'Amme', Middle Low German eide 'mother'; Germanic *aⱺθī ↛ Finnish äiti, Estonian eit (gen. eide), Lule-Lapp eiti, Norw. Lapp æi'de 'mother' || ?? **Uralic**: Samoyedic: Kamassian iyå, yå, ya, Enets êʔ, eʔ 'mother' || **Dravidian** *āy 'mother' > Tamil āy, āyi, Kannada āyi, Kolami aˌ'ˌy, Gadba āya~aya, Gondi ayal, Konda, Pengo, Manda aya, Kui aⱺa 'mother', Kuwi a(ⱺ)ya 'woman', Kurukh ayo 'mother', Malto ayya 'my mother'.

[118] ?? ***ʔaba ~*ʔaⱺa** 'daddy, father' (a nursery word) > **Ham.-Sem.**: Semitic *ʔa'b- 'father' (nom. *ʔa'b-u,-um, acc. *ʔa'b-a, -am, gen. *ʔa'b-i, -im) > Biblical Hebrew 'ʔāⱺ, st. c. ʔᵃˌⱺī, st. pronominalis (with pron. suffixes) — ʔā'ⱺī-/ʔᵃⱺī- (e.g. ʔā'ⱺī-ḵā 'thy father', ʔᵃⱺī-'ḵem 'your (pl.) father'), Phoenician ʔb, st. c. ʔabī, Ugaritic ʔ̱b, Biblical Aramaic אַב * *'ʔab, st. pron.: ʔᵃⱺūḵ 'thy father', Jewish West Aramaic ʔab'bā, Syriac ʔabbā, Arabic ʔab-, st. c. ʔabū / ʔabā / ʔabī, st. pron. ʔabū- / ʔabā- / ʔabī-, Sabaic ʔb, Mehri def. 'ħayb, pl. 'ħayb, indef. 'ʔīb, Harsusi ħayb, pl. ħōb, Jibbali C ʔiy, Soqotri ʔiyf-, Akkadian abu(m), with personal suffixes: abū-, abī- ||| East Cushitic *ʔābb-/*abb- 'father' > Afar abba, Somali ábbe, Rendille aba, Baiso abbo, Oromo ábbaʔ, Konso áppa, Gidole áppā, Gawwada áppa; this root may be the source of East Cushitic *ʔab-(-uyy-, -iyy-) 'maternal uncle' (derived from the word for 'father', cp. Latin patruus?) > Afar abo, abu, Somali ab-tí, Oromo abuyya, Konso abuyyáta, Gidole apa, apuyy, Dulay apuyya, apiyya, Burji abuyyá ||| Chadic ≈*ʔ∇b- (~*ʔap-) 'father' > West Chadic *ʔ∇b/p- 'father' > Hausa ùbā́, Tsagu ɔ̀bán, Pa'a ábatì, ábanáni, Jimbin, Diri àbá, Jimi abawa, Geji ábà, Ngizim àfɜ́k, Bade àfáŋ ¦¦ Central Chadic: ? Nzangi ābá (independent creation as a nursery word?), Buduma abú, àpá, àpɜ́, Logone ʔàbà, Musgu ap, Musgum-Pus àpī́, Zime-Batna ʔɜ̀bà ¦¦ East Chadic: Somray ʔàb, Tumak ɔ̀wɜ̀, ? Barein ā́ba (independent creation?) || **Altaic** *āba ~ *āpa 'father, grandfather' > Turkic *aba 'father, uncle, father's father' ('bear') > Old Turkic aba 'father, ancestor, bear', Chaghatay aba 'father', Türkmen (dial.) aba, Turkish (dial.), aba, appa,

Azeri (dial.) aba, East Turkic (Ili) aba 'father', Khakas oba, Chuvash ӳба ӑwb_a 'bear' ||| Mongolic *aba 'father' > Class. Mong. abu, Halha ав, аав 'father, grandfather', esp. applied to an old father (endeavouring), Class. Oirat-Mongolian āba 'father, daddy', Kalmuck аав āβъ id., Monguor āb_a, Dongxiang aba, Baoan ābe; der.: Mongolic *aba-gay 'father's younger brother' > Middle Mongolian abaɣa 'paternal uncle', Class. Mong. abaga id., Halha авга id., Class. Oirat abaɣa id., Kalmuck аβɣъ id., Monguor awu 'father's younger uncle' ||| Tungusic: Negidal apa 'grandfather' ||| Korean *àpí > Middle Korean àpí 'father' || **Dravidian** *appa 'father' > Tamil appaṉ, appu 'father', Malayalam appan, Kannada appa, Kodagu appə 'father', Tulu appa, appæ affix of respect added to proper names of men, Telugu appa 'father', Gondi āpōṙa|āl 'father', ? maṉpo 'my father', ? mi-apo 'thy father', Konda aposi 'father' (with reference to the 3rd person) ◇ The commmon origin of the Ham.-Sem., Alt. and Drav. stems is questionable, since each of them may be an independent nursery word creation. The Lallwort origin may be responsible for the variability *-b- ~ *-p-.

[119] ***ʕoḡulǁV** 'child, one's child, to beget, to bear a child' > **Ham.-Sem.**: ? Sem. *'ʕigul- 'calf' ||| Cush. ≈*√ʔḳʷl (or *√ʔḳl) id. > Agaw *qʷɜr- / *ʔɜqʷɜr- v. 'beget, child' (< Early Agaw **√ʔḳʷlʔ) > Bilin ʔɜxʷra 'boy', f. ʔɜqʷra 'daughter', pl. qʷɜr 'children', Khamir (ɜ)xʷɜr 'child', pl. ɜqʷɜr, Kemant xʷɜra 'child', Bilin ʔxʷär-, Khamir ɜxʷɜr- v. 'bear, beget'; Early Agaw **√ʔḳʷl-ϕ→ Tigray ḳʷəlʕa 'child' ¦¦ Highland East Cush. *ḳal- v. 'give birth' > Sidamo, Kambatta ḳal-, Hadiya ḳār- v. 'give birth' (of animals), Burji ḳal- v. 'give birth', ḳála 'child' || **Kartv.**: Lashkhi Svan ḡlaw- 'child, boy' || **Altaic**: Turkic *ogul 'offspring, child' ('male child') > Old Turkic oɣul 'offspring, child', Chaghatay oɣul 'son', Türkmen, Azeri, East Turkic, Sarï-Yughur, Lobnor, Halaj oɣul, Turkish oğul, Qïzïl oɣıl, Uzbek ωɣil, Qïrghïz, Altay ūl, Qaraqalpaq ul, Qazaq ūl, Volga Tatar, Bashqurt ul, Tuva ōl, Tofalar ōl, Yakut u͡ol, Old Bulghar اُول ∇ωal, Chuvash ывăл ɪvъl 'son', Khakas (Sagay, Kachin) ōl, Qïzïl oɣıl 'young man, son' || **Gilyak**: Amur Gilyak oɤla 'son'.

[120] *ʔarV 'member of the clan' > **Ham.-Sem.**: Semitic *°ʔar$_{t}$V$_{y}$- > Ugaritic ʔary 'relative, member of the clan' ||| Egyptian ỉry 'belonging to; comrade', Demotic Egyptian ỉry 'comrade', Coptic: Bohairic ēr 'comrade, friend', Sahidic eriw, Bohairic ariu, eriu 'comrades' ||| Cushitic: Beja ʔaraw 'friend' || **Indo-European:** Narrow Indo-European *aryo- 'member of the tribe' > Old Indian 'aryaḥ 'master of the house', ar'yaḥ '(hospitable) lord', 'ār(i)ya- 'an Aryan person', Avestan airyō, Old Persian ariya- 'Median, Aryan (person)'; proto-Indo-Iranian *arya- ↛ Finno-Ugric (or Finno-Permian) *orya 'slave' > Finnish orja 'slave', Estonian ori 'slave, bondsman' ¦ Erzya-Mordvin uŕe, Moksha-Mordvin ype uŕa 'slave, servant' ¦ proto-Permian *ver 'slave' (*'vir') > Old Permian wer 'servant, slave', Ziryene pi-ver 'husband's brother' (pi 'son'), Ziryene (dial.) ver-ćeri 'male fish' (ćeri 'fish'), Votyak var, war 'slave, servant' ¦¦ Old Irish aire 'free person' (> 'chief, prince') || ? **Ural.**: Ugric *arV or *arwa 'relative belonging to one's mother's clan', 'mother's (younger) brother' > Old Hungarian ara 'brother', (early 18th c.) 'Schwiegertochter', Hungarian ara 'bride' (attested from 1792; a lexical innovation in the framework of the Hungarian 'language renewal') ¦ Ob-Ugric: Kazïm Ostyak wɔr-ti 'mother's younger brother, his male descendants, his son', Northern (Obdorsk) Ostyak or-ti, or-di 'mother's brother'; Middle Lozva Vogul oår, Northern Vogul å:r 'mother's relative'.

9. The realm of the supernatural

Once I was asked by a journalist: 'Is there a Nostratic word for God?'. I had to disappoint the gentleman: in the Nostratic lexical stock this concept has not been detected. The words for gods in the descendant languages usually go back to the name of a natural phenomenon associated with the deity in question. Indo-European *dyeu̯s (> Greek Ζεύς, Old Indian dyaus 'god', etc.) originally means 'daylight', *dei̯wos (> Latin deus, Old Indian dēvas, Lithuanian dievas 'god') goes back to an adjective 'that of the daylight'. Finno-Ugric *yuma (whence Finnish jumala, Estonian jumal, Highland Cheremis yama 'God') originally means 'sky' (> 'heaven'), whence Ufa Cheremis yumo 'sky'.

But Nostratic is rich in words denoting magic activity:

[121] *ʔarba 'to make magic, cast spells' > **Ham.-Sem.**: ? Sem. *√ʔrb v. 'be cunning' > Biblical Hebrew אָרַב √ʔrb v. 'lie in wait, prepare an ambush' (← *v. 'be cunning'), Official Aramaic ארב ʔrb 'ambush', Safa'itic mʕrb 'intrigant, comploteur', Thamudic ʕrb 'se mettre en embuscade' || **Uralic**: Finno-Ugric *arpa > Finnish arpa (gen. arvan) 'lot, magic stick or any other magic tool for finding hidden things, soothsaying, etc.', arpa-mies 'soothsayer' (mies is 'man'), arpo- v. 'cast lots', Estonian arp 'lot, magic', Livonian arbī 'witch', proto-Lapp *vōrpē > Norwegian Lapp (after Friis) vuorbbe 'sors secunda, fortuna; anulus oricalchi, in membranam tympani magici, quoties pulsabatur, imponendus', Norw. Lapp vuorʹbe 'each of the two or more pieces of wood, stones etc., used by persons who are going to cast lots about something; lot; destiny', Lule Lapp vuorʹpē 'Glück, Los, Geschick' || **Altaic**: Turkic *arba- v. 'make magic, cast spells' > Old Turkic arva-, Chaghatay, Qïrghïz, Qaraqalpaq, Bashqurt, Khakas arba-, East Turkic arba-~arva-, Sarï-Yughur arva- id., Qazaq arba- v. 'tempt, seduce, try to win smb. over by deceit', Yakut arbā- v. 'flatter, exaggerate', Old Turkic arvıš 'a magic spell, or charm' (↛ Votyak urveś, urbeć 'remedy for evil eye' ?), Chaghatay arvıš-čı 'sorcerer' (a Turkic — most probably, Bulghar — word is probably the source of Votyak urveś, urbeć 'Waldgeist; a person inflicting illness by magic', Hungarian orvos, [dial.] óros, órvas, órvos, urus 'physician', as well as of Bulgarian врач 'sorcerer' and Russian врач 'physician').

[122] *ʕˈaˈlV 'to burn (esp. sacrifices), use magic means (sacrifices, magic formulae etc.) to produce a particular result' > **Ham.-Sem.**: Sem. *°√ʕly v. 'infringe, act perversely' > Syriac √ʕly in ʔaʕlī v. 'act perversely', ʕɛlˈyā 'scelus, injuria'; Sem. *√ʕlw v. 'burn a sacrifice' > Biblical Hebrew עֹלָה ~ עוֹלָה ʕōˈlā, Biblical Aramaic עֲלָיָן ʕălāyān 'burnt-offering, holocaust', Imperial Aramaic (Elephantine) עלוה ʕlwh, Samaritan Aramaic עלה ʕlh, Jewish Aramaic עֲלָתָא ʕălātā 'sacrifice', Syriac ܥܠܝܬܐ ʕalāṯā 'offering, holocaust, sacrifice; altar', Palmyrene עלתא ʕltʾ 'altar' || **Indo-European** *ʰʰelˈ- (≈ *ʰʰalˈ-) v. 'burn, burn sacrifices' > Old Indian alātam 'a fire-brand, coal' (← *'burnt') ¦¦ ? Greek [Hesychius] ἀλάβη 'coal' ¦¦ Latin altāria n. pl. 'altar (for

sacrifice)' (< *al-t-āli-), ad-oleō 'I am burning (a sacrifice)', Umbrian uřetu 'in order to burn' (< Italic *ol-) ¦¦ Swedish ala v. 'flame' || ? **Kartvelian** *ˌhˌal- v. 'flame', 'flame' > Georgian al-i 'flame', al- (1 sg. v-a-al-eb) 'aufflammen lassen', al-d-eba 'flammt auf', Inglouri Georgian hal- v. n. 'flame, burn', Svan häl ~ hal 'flame' || **Uralic**: Finno-Ugric *alV- v. 'exercise magic forces, sacrifice' > Old Hungarian áld- v. 'sacrifice', Hungarian áld- v. 'bless', áldoz- v. 'sacrifice', áldozás 'holy communion', proto-Ostyak *al- > Vakh Ostyak alɨl- v. 'curse; to scold', alɨlta köl 'Fluchwort, malediction', alɨm- v. 'curse, call down curses upon' ¦ Erzya-Mordvin alta- v. 'promise, devote', (acc. to Jevsevjev) v. 'doom' ¦ Cheremis ulδa-, ulte- v. 'prey, pronounce a prayer' || **Altaic**: Turkic *āl > Old Turkic āl 'device' (esp. 'dishonourable device'), 'deceit, guile, dirty trick', Turkish (dial.) al 'ruse, trick', Türkmen āl id., Azeri (dial.) al 'ruse, deceit, a lie', Chaghatay, Uighur al 'Schlauheit, List, Betrug, Strategie'; ? Turkic *alqa- v. 'bless, praise, conjure (supernatural spirits)' > Old Turkic alqa- v. 'praise' (both in a religious and the ordinary sense), v. 'bless', Qumuq, Qïrghïz, Qazaq alqa-, Tuva alγa- v. 'bless', Standard Altay alqa- v. 'bless, praise, thank', Khakas alγa- v. 'bless, thank', Yakut alγa- v. 'bless, praise, pray, conjure (supernatural spirits), cast a spell' ↛ Ewenki alga- v. 'bless, pray', alga 'blessing' ||| ?? Korean alcin alcin hąda 'to deceive, adulate'.

[123] ***ŝoṭV** 'to exercise magic force' (> 'to curse, bless') > **Ham.–Sem.**: Sem. *√ŝwṭ (> *√ŝyṭ) v. 'harm by magic' > Arabic šiwāṭ- ~ šuwāṭ- 'calomnie, injure', √šyṭ (2nd form) v. 'expose (smbd.) to death, to ruin'; Semitic *√ŝṭn v. 'bear ill-will, be hostile, attack, bear ill-will by words, accuse' > Biblical Hebrew √ŝṭn id., שָׂטָן ŝā'ṭān 'adversary' (> 'Satan'), Aramaic √sṭn v. 'be hostile', Arabic √šṭn v. 'oppose (smbd.)'; Semitic *√ŝtm > Arabic √štm v. 'insult, revile, vilify' ||| Egyptian štm 'heftig werden (beim Sprechen), verleumden' || **Uralic**: Finno-Ugric *ŝoṭ'a' '(magic) force', v. 'curse' (> 'cause damage to'), v. 'bless' > ? Finnish sota, Estonian sõda 'war, battle', Finnish soti-, Estonian sõdi- v. 'wage war' ¦ proto-Mordvin *śūdъ- > Erzya-Mordvin śudo-, Moksha-Mordvin śudъ- v. 'curse' ¦ Eastern Cheremis šu'δem v. 'curse, invoke curses (on smbd's

head), execrate', Lowland Cheremis ˈšuɓьš 'curses, execration', Highland Cheremis šuɓьš 'damnation, invocation' ¦¦ proto-Ob-Ugric *šōt > proto-Vogul *šāt 'luck' > Tavda Vogul šāt, Northern Vogul sōt ≙ Ss sɔ̄t; proto-Ostyak *sɔt/*sot 'force, power' > Kazïm Ostyak sɔt, Obdorsk Ostyak sot || **Dravidian** (ambiguous) *coṯṯa 'insinuation, disparaging remark; defect, blame' > Tamil coṭṭu 'defect, insinuation', Malayalam caṭṭu 'fault', Telugu soḍḍu 'defect, fault; blame, imputation' ¶¶ The Drav. word may alternatively belong together with Kartv. *°č|codw- v. 'sin'.

[124] ≈≈***tulV** 'to tell (a story), pronounce magic\ritual texts' > **Ham.-Sem.**: Semitic *°√tly, *°√twl > Arabic tuwal- 'magic art, witchcraft' ||| Berber *tlH > Shawiya utla v. 'speak, talk' ||| ? Cushitic: East Cush.: Somali talo 'parere, opinione; consiglio, proposta', tali- v. 'decide, advise', Somali tálo 'decision' ¦¦ South Cushitic: Kwadza tulatu 'court case' ¦¦ ? Agaw: Bilin, Kwara telā, Khamir ṭelā, Kemant tilā 'medicine, drug (Arznei)' || **Indo-Eur.** *del- > Hittite talliya- v. 'invoke (gods)', Lycian B tali '(heathen) priest' ||| Germanic *talō 'narration', *taljan 'to tell, narrate' > Old Norse tala 'speech, conversation', Anglo-Saxon talu 'narration' (> English tale), Middle Low German tale 'speech', Middle Dutch tael, tale 'speech, language', Old High German zala 'Bericht'; Old Norse tala 'to speak, talk', Anglo-Saxon talian 'rechnen, meinen', tellan 'to narrate', English tell|| **Uralic**: Finno-Ugric *°tultV 'witchcraft' > Hungarian táltos 'sorcerer, shaman; magic horse' ¦ Ob-Ugric *tV:lt > proto-Ostyak *tɔlt/*tolt > Northern Ostyak tolt 'giant' (← 'sorcerer'), toltn, tolten 'mit Zauberkraft', Vasyugan Ostyak tolt 'fever', Kazïm Ostyak tǫɬt 'Hilfe; Linderung (bei einer Krankheit, in der Armut)', tǫɬta 'without effort, without noise; suddenly'; proto-Vogul *tūlt > North. Vogul tūltən, tūltnə 'leicht, einfach' (← *'by witchcraft').

In the framework of one book it is hardly possible to refer to the Nostratic perspective of *all* aspect of life and culture. If there are any desiderata as to specific questions or fields, I shall be happy to do my best to satisfy the readers' interest.

Phonetic Correspondences

Main Phonetic Correspondences of Consonants in the Nostratic Languages

Nostratic consonant chart

Stops and affricates			Fricatives		Central approximants	Nasals	Lateral sonants	Vibrants
Voiced	Voiceless	Emph.	Voiced	Voiceless				
b	p	p˞			w	m		
d	t	t˞				n	l	
						ṅ = ŋ	ļ	r
ʒ	c	c˞	z	s				
ǯ	č	č˞	ž	š				
ʑ	ć	ć˞	ź	ś	ɥ	ń	ĺ	ŕ
ʓ	ĉ	ĉ˞	ẑ	ŝ				
g	k	k˞				ŋ		
ɡ	q	q̣	ɣ	χ				
				ħ (= h˞)	ʕ			
	ʔ			h				

Symbols in the chart: affricates: ʒ = d͡z, c = t͡s, ǯ = d͡ž, č = t͡š, ʑ = d͡zʸ, ć = t͡sʸ; lateral obstruents: ʓ̂, ĉ, ĉ˞, ẑ, ŝ — lateralized ʒ, c, c˞, z, s; palatalized consonants: ʑ, ć, ć˞, ź, ś, ń, ĺ, ŕ = palatalized ʒ, c, c˞, z, s, n, l, r; uvular stops: ɡ, q, q̣ = uvular g, k, k˞; uvular fricatives: χ = Spanish j, ɣ = Arabic غ; epiglottal (pharyngeal) consonant: voiceless ħ (= h˞ = Arabic ح), voiced ʕ (= Arabic ع).

In the following table of sound correspondences the symbol '–' denotes zero. The sign ':' symbolizes the lengthening of the preceding vowel, '⊥:' denotes lengthening of the consonant. The sign '⊥ˀ' denotes glottalization of an adjacent consonant, but in Nostratic reconstruction it denotes emphatic consonants without specifying the phonetic nature of the emphasis, '⊥ᵡ' is uvularization of the consonant, '⊥ˁ' is its tensification (transformation of a lax consonant into a tense one [fortis]), '⊥̥' is its devoicing, '⊥̀' is its retroflexivization, '⊥ʲ' is its palatalization. The symbol ° denotes here labialization of the adjacent vowel, the sign ¨ denotes its palatalization. Within conditioning formulas, '_U' means 'before a labial vowel', '_E' means 'before a palatal vowel'. IE +*(s)- denotes the addition of the initial IE *s mobile as a reflex of N word-middle palatal elements. The symbol '* *' is used for working hypotheses: in cases when we have sufficient factual confirmation for a group of N phonemes only rather than for each individual N phoneme, e.g. in the case of *ɲ and *ɲ̀, where a distinction is possible only if the phoneme is represented in Ostyak, so that in daughter languages without *ɲ|ɲ̀-roots common with Ostyak we cannot find formal proof of representation of N *ɲ and N *ɲ̀ separately, but only representation of unspecified *ɲ|ɲ̀. In such cases we suppose (as a working hypothesis) that both phonemes (in the case described *ɲ and *ɲ̀) are reflected in the same way, which is symbolized by '* *'. The letter 'N' symbolizes an unspecified non-labial nasal consonant, 'L' is an unspecified lateral sonorant. IE *G = *g|gʷ|g͡, *Gʰ = *gʰ|gʰʷ|g͡ʰ. M *G = *g|*ɡ, *K = *k|q.

The following abbreviations are used: N = Nostratic; S = Semitic; Eg = Egyptian; B = Berber; K = Kartvelian; IE = Indo-European; U = Uralic; T = Turkic; M = Mongolic; Tg = Tungusic; D = Dravidian.

N	S	Eg	B	K	IE	U	T	M	Tg	D
*b-	*b	b	*b	*b	*bʰ	*p	*b	*b	*b	*p
*-b-	*b	b	*b, *β	*b	*bʰ	*w, ⊥_/*p	*b	*b	*b	*v
*p-	*p	f	*f	*p	*p, *b	*p	*p_, *b	*φ	*p	*p
*-p-	*p	f	*f	*p	*p, *b	*p, √	*p	*b, *β>*ɣ	*p	*v
*pˀ-	*p	p	*f	*p, *pˀ	*p	*p	*h >*–	*φ	*p	*p
*-pˀ-	*p	p	*f	*p, *pˀ	*p	*pp	*p	*b	*p	*pp
*d-	*d	d	*d	*d	*dʰ	*t	*ȷ	*d, _i/*ʒ	*d	*t
*-d-	*d	d	*d	*d	*d	*δ	*δ	*d	*d	*ṭ/ṭṭ
*t-	*t	t	*t	*t	*d	*t	*t˙	*d, _i/*ɕ	*d	*t
*-t-	*t	t	*t	*t	*d	*t	*t	*d	*d	*ṭ/ṭṭ, *t/tt
*tˀ-	*tˀ, *t	d	*ɡ	*tˀ	*t	*t	*tˁ	*t, *t i/*ɕ		*t

N	S	Eg	B	K	IE	U	T	M	Tg	D
*-t̓-	*t̓,*t	ɗ,t	*ɖ,*t	*t̓	*t	*tt	*t	*t	*t	*tt/t
*g-	*g	g,ʒ	*g	*g	*gʰ, *g͡ʰ, *gʷʰ	*k	*k̄,*kʿ	*g,*ɣ	*g	*k
*-g-	*g	g,ʒ	*g	*g	*gʰ, *g͡ʰ, *gʷʰ	*ɣ	*g	*g	*g	*:–
*k-	*k	k,c	*k,*g?	*k	*g,*g͡, *gʷ	*k	*k̄	*k,*q	*k	*k
*-k-	*k	k,c		*k	*g,*g͡, *gʷ	*k	*g,*k	*g,*ɣ	*g	*k
*k̓-	*k̓,*k	k̤,k	*ɣ̰	*k̓	*k,*k͡, *kʷ	*k	*kʿ,*k̄	*k,*q	*ɤ	*k
*-k̓-	*k̓	k̤	*ɣ̰,*k	*k̓	*k,*k͡, *kʷ	*kk	*k	*k,*q	*k	*kk
*ɡ-	*ɣ	ʕ?		*ɣ	*ɤ, *ɤʷ, [*ɤ̂?]	*–	*–	*–	*–	*–
*-ɡ-	*ɣ	H		*ɣ	*X, ?*H	*–, ?*ɤ	*–	*–	*–, ?*g	*–
*q-	*χ	ɤ	*H	*q	*ɤ, *ɤʷ, [*ɤ̂?]	*–	*–	*–	*–	*–
*-q-	*χ	ɤ	?*H	*q	*H	*–	*–	*–,*ɡ, ?*g	*–	*–
*ɡ-	*k̓,*χ	k̤, ɤ	*ɣ̰	*ɡ	*k,*k͡, *kʷ	*k	*kʿ,*k̄	*k,*q	*ɤ	*k
*-ɡ-	*k̓	k̤	?*ɣ̰	*ɡ	*k,*k͡, *kʷ	*k, *kk	*k	*k,*q	*k	*k *kk
*ʒ-	*z	ʒ?		*ʓ̀=*ʒ$_1$	*s	*s	*ɟ	*ʒ?	*ɟ	*ɕ
*-ʒ-	*z	ʒ?		*ʓ̀=*ʒ$_1$	*s	?*ć		*ʒ?	*ɟ?	*ʈ?
*c-	*s			*c̀=*c$_1$	?*(s)K	*ć	*ɕ	*ɕ?	*ɕ	*ɕ
*-c-	*s	?c	?*s	*c̀=*c$_1$	*s	*ć	*ɕ ?	*ɕ?		
*c̓-	*c̓			*c̓̀=*c̓$_1$	?*(s)K	*ć	*ɕ	*ɕ	*ɕ	*ɕ
*-c̓-	*c̓, *s	?ʒ		*c̓̀=*c̓$_1$	*s	?*ć	*ɕ			*ɕ
*s-	*š	s	*s	*s̀=*s$_1$	*s	*s	*s	*s	*s	*ɕ
*-s-	*š	s	?*s	*s̀=*s$_1$	*s	*s	*s	*s	*s	*ɕ
*z-	*z			*z̀=*z$_1$	*H	*s	*ɟ	?*s	*s	*ɕ
¿*-z-		z?	?*z	*z̀=*z$_1$	?*H	*s		?*s,*ɣ		
*ʑ-	*z	z?		*ʒ	*s	*ć	*ɟ	*ʒ?	*ɟ?	
*-ʑ-	*z			*ʒ, *z	*s	*ć		*ʒ		*ɕ
*ć-	*s		*s	*c	*sK	*ć	*ɕ		*ɕ	*ɕ
*-ć-	*s			*c	*s	*ć	*ɕ ?	*ɕ?		*ɕ
*ć̓-	*c̓			*c̓	*sK	*ć	*ɕ		*ɕ	*ɕ
*-c̓-	*c̓, *s	?ʒ	?*s	*c̓	?*s	*ć(ć)	*ɕ	*ɕ?		?*ɕ(ɕ)
*ś-	*š	s	*s	*s	*s	*ś	*s	*s	*s	*ɕ
*-ś-	*š	s	*s	*s	*s	*ś	?*s	*s	*s	*ɕ
*ź-	*z			*z	*H	*ś	*ɟ	?*s	*s	*ɕ
*-ź-	*z	z?, ś?	*z?	*z	*H	*ś		*ʒ?		*ɕ

N	S	Eg	B	K	IE	U	T	M	Tg	D
*ǯ-	*ð	z?		*ǯ	*s	*č,?*ɣ ?*š	*ɟ	*ʒ	*ɟ	*ɒ,?*ţ
*-ǯ-	*ð	ʒ, d		*ǯ	*s,*d, *sd?	*ð	*ð	*ʒ,?*d	*ɟ?	
*č- ?*ť	*θ ??*d	?*ɟ		*č	*(s)t-	*č	*ɕ	*c	*ɕ	*ɒ
*-č-	*θ	?c	*s	*č	*s	*č	*ɕ	*c	*ɕ?	*c
*ĉ̓-	*θ̓			*ĉ̓	*(s)t	*č	*ɕ	*c	*ɕ	*c
*-ĉ̓-	*θ̓	ʒ		*ĉ̓	*tʲ, *sT	*č	*ɕ	*c	*ɕ	*ɒ
*š-	*š	s	?*s	*š	*s	*š	*s	*s	*s	*c
*-š-	*š	s	*s	*š	*s	*š	*s	*s	*s	*c
*ž-	*š	? z		*z	*H	*š			*s ?	
*-ž-	*š,?*z	?? ʒ	*z	*ž, *z	*H	*š			*ɟ ?	
ŝ- ¿-ŝ-	*ŝ	? s	*s	*ẑ	*ɳ	*ʎ	? *ɟ	*ʒ	*ɟ ?	*c *ţ,*ţţ
*ĉ-	*ŝ	ʁ	?*s	*ĉ	*s	*ć	*ɕ	*c	*ɕ	*c
*-ĉ-	*ŝ	ʁ		?*ĉ	*s	*ć	*ɕ	*c	?*ɕ	*c
*ĉ̓-	*ŝ̓	? ʒ	?*ʒ	*ĉ̓		*ŝ	*ɕ	*c	*ɕ	*c
*-ĉ̓-	*ŝ̓	ʒ		*c	*s	*ć	*ɕ	*c	*ɕ	*ɒ
*ŝ-	*ŝ	ʁ		*ŝ=*s_1	*s,*k̂s	*ŝ	*s	*s	*s, *š	*c
*-ŝ-	*ŝ	ʁ		*ŝ=*s_1	*s	*ŝ	*s	*s	*s, ?*ɳ	*c
*ẑ-	*ŝ	ʁ		?*ɳ	*ɳ	*ɳ, *ŝ	*ɟ	*s	*s	*n
*-ẑ-	*ŝ	?? n	?*s	*ɳ	*ɳ	*ẑ	*ɳ	*ɳ	*ɳ	*ɳ
*ɣ-	*ʕ	ʕ		*ɣ	*X	*–	*–	*–	*–	*–
*-ɣ-	*ʕ	?ʕ	*H	?*ɣ, ⊥_/* χ	?*X, *–	*–, ?*ʁ	*–	*–	*–	*–, *:
*χ-	*ħ	ħ	*H	*χ	*X	*–	*–	*–	*–	*–
*-χ-	*ħ	ħ	?*H|–	*χ	*X	*–	*–,*:	*–	*–, *:	*–
*ʕ-	*ʕ	ʕ	?*H|–	*–	*H	*–	*–	*–	*–	*–
*-ʕ-	*ʕ	ʕ	?*H|–	*–	*H	*–,*:	*–,*:	*–	*–, *:	*–
*ħ-	*ħ	ħ, x́	*H	*–	*H	?*–	*–	*–		*–
*-ħ-	*ħ	ħ	*H|–	*–	*H	*–	*–,*:	*–		*–
*h-	*h	?h		*–	*X	*–	*–	*–	*–	*–
*-h-	*h, *–	h, –	?*–	*–	*X	*–	*–,*:	*–	*–	*–,*:
*ʔ-	*ʔ	ʲ, ɜ	*ʔ-,*H	*–	*ʔ = *–	*–	*–	*–	*–	*–
*-ʔ-	*ʔ	ɜ, ɣ, –	*–,*ʔ	*–,*⊥˥	*–,*:	*ʔ = *–	*–,*:	*–	*–,*:	*–
*m-	*m		*m	*m	*m	*m	*b|m	*m, _#/* b	*m, _#/* b	*m
*-m-	*m	m	*m	*m	*m	*m	*m	*m	*m	*m
*n-	*n	n	**n	**n	*n	*n	**ɟ	*n	**n	*n
*-n-	*n	n	**n	*n	*n	*n	**n	*n	*n	*ɲ
*ɲ-	*n	n	**n	**n	*n, ??*kn	*ɲ	*ɟ	*n	**n, ?*ŋ	*n

N	S	Eg	B	K	IE	U	T	M	Tg	D
*-ṅ-	*n	n	*n	**n	*n	*n	*n	*n	**n	*-ɳ-, t/n
*ń-	*n	n		*n	*i̯	*ń	*ȷ (<*ń)	*n	*ń	*n
*-ń-	*n			*n	*i̯,?*n	*ń	*ń>*ɣ	?*n	*N	*N
?*ŋ-	*n ?				*n	*n.?*–	*–,*ȷ	*–,*n	*ŋ	?*n
*-ŋ-	*n, *m	n	*n	*n	*n, *ŋgʰ, *ŋg͡ʰ, *ŋgʷʰ	*ŋ	*ŋ	*ŋ, *ng. *ng *ŋK	*ŋ	*ŋk
*l-	*l	? l̥	*l		*l	*l	*ȷ	*n	?*l	??*t
*-l-	*l	r ?, ʒ	*l	*l	*l	*l	*l	*l	*l	*l
*l̥-	*l	?n	*l	*l	*l	*ȷ	*ȷ	*n	*l	*n
*-l̥-	*l		*l	*l	*l	*ȷ	*l	*l	*l	*ȷ
*ĺ-	*l		?*l	*l	*l	*ĺ	?*ȷ	?*l, ?*n	?*l	*ń, **n
*-ĺ-	*l	r, ʒ	*l	*l	*l	*ĺ	*ĺ	*l	*l	*ȷ
*r-	*r	r	?*r	*r	*r	*r	*ȷ	? *n	*l, *n	*n
*-r-	*r	r, ʒ	*r	*r	*r	*r	*r	*r	*r	*ɣ; *r (< *r⊥)
*-ŕ-	*r	r, ʒ	*r	*r	*r	*r	*ŕ; _⊥/*r	*r	*r	*r̀
*w-	*w	ɯ	*w	*w	*u̯	*w	*b.*ᵠ	*b	*b, ?*ᵠ	*v. _U/*–
*-w- /V_V	*w	ɯ, ʒ	?*w	*w,*–	*u̯	*w	*b,*–	*β,*b	*b	*v
*-w- /⊥_V	*w,*–	??–, ɣ	??*w	*w.*–	*u̯,*–	*w.*–		*b.*–	*b,*–	*–
*-w-_⊥ /a,E ?*v	*w,*–			*w	*u̯	*w.*ᵠ	?ᵠ	*–,*ᵠ	*–	*–,
*-w- /u_⊥	*:		?*:	*–,*w	*:.*–	*–	*:	*–		*:
*ɣ-	*ɣ	i̯	?*ɣ, *i	*–, ?*ɣ	*i̯,*ei̯	*ɣ	*ȷ	*ɣ	?*ɣ	*·
*-ɣ- /V_V	*ɣ	ɣ, –	*ɣ	*–	*i̯/*i	*ɣ	*ɣ	*ɣ	*ɣ, *–	*ɣ, *–
*-ɣ- /⊥_V	*ɣ, *–	?–	*–	*–	*–,*i̯. +*(s)-	*ɣ.*⊥ʸ	*⊥ʸ, *–,*	*–,*ɣ	*–, *⊥ʸ, *i̯	*–, *⊥
*-ɣ- /V_⊥	*ɣ, *–	ɣ, –	?*ɣ	*–	*i̯,*–	*ɣ.*⊥ʸ	*–,*⊥ʸ	*–,*ɣ	*–, *i̯	*–,*ɣ

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Note: For considerations of space I have been obliged to skip all bibliographical references and indications of my predecessors and colleagues who were the first to propose some important inter-family comparisons (V. Illich-Svitych, B. Collinder, K.H. Menges, V. Blažek, M. Räsänen, V. Shevoroshkin, V. Terentyev, S. Starostin, E. Helimski, H. Fähnrich, S.A. Tyler, Th. Burrow, A. Gluhak, A. Bomhard, G. Klimov, G. Takács, B. Čop, I. Hegedűs, K. Bouda, and others). The necessary references and acknowledgements will appear in my *Nostratic Dictionary* (in preparation).

Index of Nostratic Words

Index of Nostratic words (mentioned in the book):

[1] *ʔibrE 'fig tree'
[2] *ĉˀʳiˀbV$_{ɣ}$V (or *ĉˀʳiˀbV$_{ʕ}$V) 'hyena'
[3] *ʔʳüˀŕV$_{w}$V 'large feline'
[4] *SiwV$_{ŋ}$gE 'leopard'
[5] *ʔoŕʳuˀ 'antelope (male), deer'
[6] *maŋʳgˀV or *maN$_{ʟ}$i$_{ɻ}$ʳgˀV 'monkey'
[7] *šüŋU 'snow'
[8] *čaĺ$_{ʟ}$U$_{ɻ}$gV 'snow' or 'hoar-frost'
[9] ?? *čˇˀʳaˀRʔV 'hoar-frost', (>) 'frozen soil'
[10] *kˀir$_{ʟ}$u$_{ɻ}$qa 'ice, hoarfrost; to freeze'
[11] *Sah$_{ʟ}$i$_{ɻ}$bV 'saline earth, desert'
[12] *täˀlwA or *taˀlwä 'cold season, rain'
[13] *yamV 'water body'
[14] *moRE 'water body'
[15] *qaRp|pˀV 'to harvest' (→ 'cereals')
[16] *ʒükV or *ʒukE 'edible cereals, harvest (of wild plants?)'
[17] *gaLV 'cereals'
[18] *χäntˀV 'kernel, grain'
[19] *mäˀlge 'breast, female breast'
[20] *ħaˀlbV (or *χaˀlbV) 'white'
[21] *mayǯV 'tasty beverage'
[22] *kˀadV 'to wicker, wattle' (> 'wall, fence')
[23] *kˀoʔć|cV 'basket'
[24] *pˀ|patʳaˀ 'basket, box'
[25] *ʕ|ɣaŕKˀʳuˀ 'sinew'
[26] *yaŋ$_{ʟ}$y$_{ɻ}$V 'sinew, tendon'
[27] *ˀloŋKˀa 'to bend'
[28] *ńoɣ|ʕˀlE (or *ńaɣ|ʕˀlE) 'sinew', 'to tie together'
[29] *p|pˀešqE ~ *p|pˀeqšE 'spear'
[30] *tˀuˀl$_{ʟ}$i$_{ɻ}$ʳgˀV 'to spread like a veil/net, cover with a veil/net, catch with a net'
[31] *goki 'track' (→ 'way'), 'to follow the track'
[32] *ʳdˀEʕSV or *ʳdˀEɣ|χSV 'to follow the tracks'
[33] *šuby V 'spike, spear, to pierce'
[34] *tˀapˀV 'to hit (the target)'

[35] *ment'∇ 'to miss one's aim' (→ 'to pass by')
[36] *gurHa 'antelope, male antelope'
[37] *ʔEl|ɮi 'deer'
[38] *boča '(young) deer'
[39] *buK'a 'bovines'
[40] *čoma 'aurochs, wild bovine'
[41] ? *č'a'w$_{L}$∇$_{J}$R∇ (or *čuR∇) 'bull, calf'
[42] *ɣ|gawV 'wild sheep\goats', (→ or ←) 'wild game'
[43] *diga 'goat'
[44] *k'ä'c'∇ 'wild goat' (or 'a kind of antelope')
[45] *bukEɣ|ʕ∇ 'billy goat, ram'
[46] *ʕ∇p'∇r∇ 'wild boar'
[47] *ʕir'i' '(male, young) artiodactyl'
[48] *p'oK'ü 'pack, wild cattle'
[49] *gadi (or *gati?) 'kid, young goat', ? '(a species of) antelope'
[50] *bUyẑ∇ 'fur-bearing animal'
[51] *ʔ|hUr∇(-ba) 'squirrel or a similar animal'
[52] *k'un|ń∇(ŕ∇) 'small carnivore (marten, polecat, wild cat, or sim.)'
[53] *dik'∇ 'edible cereals or fruit'
[54] *ʒ|ǯugb∇ 'fig tree (species?)'
[55] ?? *b'i'ŕ'uw'ga '(a kind of) edible fruit'
[56] *K'uS∇ 'nut'
[57] *L∇ǯ∇ (or *L∇wǯ∇) '(a kind of) nut', 'nut-tree\shrub'
[58] *but'∇ 'pistachio tree\nut'
[59] *mar$_{L}$y$_{J}$∇ '(mul-, black-) berries'
[60] *m'o'$_{L}$y$_{J}$ẑ∇ '(a kind of) berry'
[61] ? *K'ER∇ 'fruit of a leguminous plant' or sim.
[62] *m'u'rk'∇(-ŋK'∇) 'root, root-crops, edible roots'
[63] *mol|ɮ∇ 'to pound, crumble, gnaw/smash to pieces'
[64] *ʔäPHi 'to bake, prepare food on hot stones'
[65] *qUbź∇ (< *qUpź∇?) 'food made of ground cereals', 'flour' (> 'bread')
[66] *'ʔ'omśa 'meat'
[67] *g'u'ʒ∇ 'intestines, pluck (as food)'
[68] *ʔayŋo 'marrow, brain, soft fat of animals'
[69] *mag$_{L}$i$_{J}$za 'liver'
[70] *ń'a'K'U 'soft parts of the animal's body (liver, marrow, suet)'
[71] *muña(-t|d∇) 'egg'

[72] ? *ʔʳa|oˀwḥ|χi or *ʔuḥ|χi 'egg' (or 'white of egg')
[73] *Kˀol∇ '(large) fish'
[74] *doTgiHU 'fish'
[75] *mEn|n̂i '(a kind of) fish'
[76] *p|pˀay∇ '(a kind of) fish'
[77] *tˀüR∇ 'hard-roe'
[78] *ʳkˀˀürʟwˌ∇ or *ʳkˀˀurʟwˌE 'hard roe, spawn'
[79] *madu 'honey'
[80] *čˀˀüˀr∇ 'flint-stone, knife'
[81] ? *buR∇ 'flint' (> 'to cut\carve with a flint')
[82] *ti|eʟʔaˌío (or *tüʟʔaˌí∇) 'stone, heap of stones'
[83] *kiwʟ∇ˌḥE 'stone'
[84] *boruʕ|ɣ∇ 'trunk' (→ 'log')
[85] ? *cˀUɻ∇ 'stalk, stick'
[86] *kˀoǯʕ∇ 'tree trunk'
[87] *kañ∇(-b∇) 'stalk, trunk' (→ 'log')
[88] *ǯuR∇ 'pole, long piece of wood'
[89] *ʒirɣu|ü 'vein, sinew'
[90] *ʔeʔekU 'thorn, hook' (< 'tooth')
[91] *kˀˀaˀkʟwˌ∇ 'tooth, claw', 'hook'
[92] *toŕ∇ 'bark; to bark (remove the bark), to peel'
[93] *Kˀaʳpʔ|ʕˀˀEˀ 'bark'
[94] *Kˀayer∇ 'bark, film'
[95] *tˀoʟwˌɋa or *tˀoɋaʟ-w∇ˌ 'hide, skin'
[96] *tˀaɪʟUˌya 'skin, pelt'
[97] *Kˀaíʳüˀ 'skin, film, bark'
[98] *kˀoRupˀ∇ '(kind of) bark', 'skin'
[99] *Kˀoʔ∇ 'to skin, to bark'
[100] *Kˀ∇R∇Hpˀ|p∇ 'piece of leather (used esp. as footwear)'
[101] *pˀiχ|ɣɣA 'sharp bone, sharp tool'
[102] *piš∇ 'bile'
[103] *ʳtˀˀäχɪ|ɻa~*ʳtˀˀäɪ|ɻχa or *ʳtˀˀaχɪ|ɻE~*ʳtˀˀaɪ|ɻχE 'spleen'
[104] *ɪʳä|eˀpˀA 'spleen'
[105] *tˀEɋmE 'sinciput, crown of the head, top, tip'
[106] *ʳgˀedi 'occiput; hind part'
[106] ? *go|atKˀE 'popliteal space (back of the knee), armpit'
[108] *n̂iKˀa 'jugular vertebra, neck, nape of the neck'

[109] *kälu|ü 'a woman from the other exogamous moiety'

[110] *küda 'a man from the other moiety'

[111] *śeʒA 'a relative from the other moiety'

[112] *ʟħ|χ∇˩wänˀ|n∇ 'relative [of a younger\the same generation] from the other moiety'

[113] *n|ˀn̆u|üś∇ or *n|ˀn̆u|üsɣ∇ 'woman' (general term), 'woman from the other moiety'

[114] *Hić|cχ∇ or *-cˀ|cˀ-, *-ɣ|g|h- 'father, head of a family'

[115] *ʔediN∇ 'pater familias'

[116] *ʔemA 'mother'

[117] *ʔʳäˀɣ∇ (or *hʳäˀɣ∇?) 'mother'

[118] ?? *ʔaba ~ *ʔapˀa 'daddy, father'

[119] *ʕoɡ̱ˀ|ʟ∇ 'child, one's child, to beget, to bear a child'

[120] *ʔar∇ 'member of the clan'

[121] *ʔarba 'to make magic, cast spells'

[122] *ʕʳaˀl∇ 'to burn (esp. sacrifices), use magic means (sacrifices, magic formulae etc.) to produce a particular result'

[123] ??*ʕ|ɣaˀ|ʟ∇ 'device (esp. a dishonourable one) of doing something'

[124] *ŝotˀ∇ 'to exercise magic force' (> 'to curse, bless')

[125] ≈≈*tulˀ∇ 'to tell (a story), pronounce magic\ritual texts'

The Nostratic Macrofamily and Linguistic Palaeontology

Nostratic is a hypothetical macrofamily of languages which includes Indo-European, Hamito-Semitic (Semitic, Egyptian, Berber, Cushitic, Omotic, Chadic), Kartvelian (Georgian and related languages), Uralic ((Finno-Ugric, Samoyedic, Yukagir), Altaic (Turkic, Mongolic, Tungusic, Korean, Japanese), and Dravidian (in India). The hypothesis is based on more than 2000 common roots and affixes, in which regular sound correspondences are observed. In the present book the ancient Nostratic roots are used in order to achieve information about the speakers of Proto-Nostratic, their habitat, their culture and economy, their kinship system, and their environment. An attempt is made to determine whether their culture belonged to the Neolithic peroid or to an earlier epoch.

Aharon Dolgopolsky was born in Moscow in 1930. He was a member of the Institute of Linguistics (USSR Academy of Sciences). His field of research is comparative linguistics. In the early 1960s he (like V. Illich-Svitych, but independently) began to study lexical and grammatical similarities among Indo-European, Hamito-Semtic, Kartvelian, Uralic and Altaic and draw the conclusion that these language families derive from a common source, Illich-Svitych and Dolgopolsky were the first to undertake a multilateral comparison of daughter-languages of Nostratic. For 8 years Dolgopolsky taught Nostratic linguistics at Moscow University and trained a generation of comparativists (S. Starostin, E. Helimski, O. Stolbova, and others). In 1976 he moved to Israel and since then has worked at Hajfa University.

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